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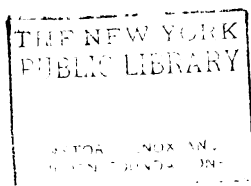
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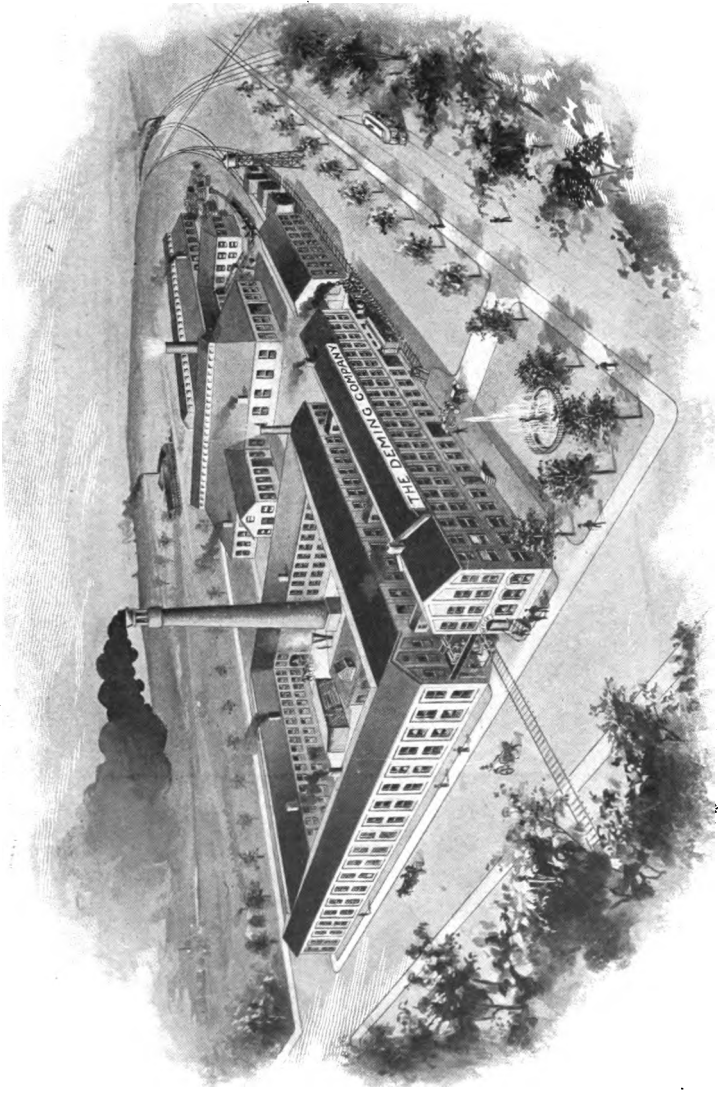
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Deming

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THE DEMING COMPANY'S WORKS—THE BEST EQUIPPED PUMP FACTORY IN THE WORLD.

NUMBER 21

ILLUSTRATED CATALOGUE

OF

Pumps and Hydraulic Machinery,

WELL AND PUMP FIXTURES,

INCLUDING

Cistern, Well and Wind Mill Pumps,

Iron and Brass Cylinders, Well Supplies, Hydraulic Rams,

Spray Pumps and Nozzles,

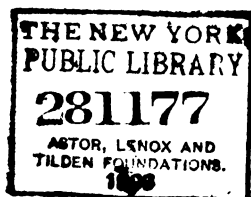
Triplex Power Pumps for Various Duties,

Artesian Well Pumping Engines, Etc.

MANUFACTURED BY

THE DEMING COMPANY,

SALEM, OHIO, U. S. A.



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CLEVELAND, OHIO.

Office of THE DEMING COMPANY, }
SALEM, OHIO, January 1st, 1902. }

TO THE TRADE:—

In presenting our **General Catalogue, No. 21**, we wish to direct attention to the many new and useful Pumps not illustrated in former editions. Deming Pumps are unsurpassed in design and construction. They are distinctly practical and useful. The many purposes for which they are adapted have brought them into general use in all parts of the world. Our factory is well equipped and our facilities are first-class in every particular. We are enlarging our plant and adding to our already excellent equipment some new machinery especially adapted for our own work.

Articles of our manufacture are represented by a Cipher word, for convenience in telegraphing. On pages following this and preceding Pump lists are: **A Telegraph Code**, a **General Cassification** of Pumps, an **Alphabetical Index**, and many **Rules and Tables** useful to Pump men and Hydraulic Engineers. We issue for convenience of dealers and users a special catalogue of Triplex and Deep Well Power Pumps; also one relating to Spray Pumps and Nozzles.

As we are constantly making improvements, some of the cuts may not represent accurately the articles as made at the time goods are ordered.

NOTE CAREFULLY:

Orders should be specific; the Figure and Number, or size and fitting only are necessary. Do not mutilate the catalogue.

Prices and terms are given to the trade only by a discount sheet which is subject to change without notice. **Parties unknown to us** should accompany order with cash or satisfactory reference.

Claims for allowance will not be considered unless presented on receipt of goods. We are not responsible for breakages after goods are delivered to Railway Company in good condition.

Estimates and recommendations will be gladly given for Power Pumping outfits to prospective purchasers.

This catalogue is self-explanatory and will save much unnecessary correspondence. It supersedes all former issues. Your valued orders are solicited, and shall have prompt and careful attention.

Respectfully,

THE DEMING COMPANY.

<p>GENERAL AGENCIES located as follows:</p>	{	<p>CHICAGO, ILL. PHILADELPHIA, PA. BOSTON, MASS. KANSAS CITY, MO. RICHMOND, VA. INDIANAPOLIS, IND.</p>	{	<p>PITTSBURG, PA. DENVER, COLO. PORTLAND, ORE. SAN FRANCISCO, CAL. LOS ANGELES, CAL. LOUISVILLE, KY.</p>
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TELEGRAPH CIPHER CODE

For the accommodation of customers, who may wish to order by telegraph, we append the following Cipher Code; it will often save considerable expense in telegraphic correspondence.

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We also use the A B C 4th Edition and Western Union Telegraphic Codes. When using either of these special Codes, add to telegram the word "Alphabet" for "A B C 4th Edition," and the word "Western" for "Western Union Telegraphic" Code.

CIPHER VOCABULARY

CONCERNING GOODS IN STOCK

<i>Pabulum</i>	—Have you in stock?	<i>Pagan</i>	—{ We have in stock, and will ship at once.
<i>Packet</i>	—How soon could you furnish?	<i>Painful</i>	—{ We have none in stock, but could furnish in a few days.
<i>Pacify</i>	—{ Have you in stock and could you ship at once?	<i>Painless</i>	—{ We have none of the goods you order in stock.
<i>Paddling</i>	—{ How soon could you ship if ordered at once?	<i>Painter</i>	—{ We have no . . . in stock, but will ship other goods promptly.
<i>Paddle</i>	—We have in stock.		
<i>Padlock</i>	—{ We have in stock and could ship at once.		

CONCERNING ORDERS AND SHIPMENTS

<i>Palatine</i>	—When can you ship?	<i>Pathetic</i>	—Ship immediately by freight.
<i>Paleness</i>	—When will you ship?	<i>Pathos</i>	—Ship immediately by express.
<i>Palisade</i>	—{ When will you ship our order of . . . ?	<i>Patronage</i>	—Ship by fast freight.
<i>Passion</i>	—{ Advise us by telegraph when you can ship our order.	<i>Pauline</i>	—Ship by quickest route.
<i>Passover</i>	—Have you shipped our order of . . . ?	<i>Pavilion</i>	—{ Ship by rail to . . . obtaining lowest through rate.
<i>Passport</i>	—How soon can you complete our order of . . . ?	<i>Plebeian</i>	—{ Quote prices, weight, time of delivery.
<i>Pastorate</i>	—Enter our order for . . . specifications for which follow by mail.	<i>Probate</i>	—Referring to your letter of . . .
<i>Password</i>	—Do not ship our order of . . . until further advised by us.	<i>Probation</i>	—We wrote you fully to-day.
<i>Pastime</i>	—If you can ship at once advise us by telegraph.	<i>Probing</i>	—We have no letter from you.
<i>Pastoral</i>	—{ If you cannot ship within time mentioned, advise us by telegraph.	<i>Probit</i>	—Write giving full particulars.
<i>Pastry</i>	—{ Ship what you have in stock, and let balance follow as soon as possible.	<i>Proclaim</i>	—Mail blue-print of . . .
<i>Pastured</i>	—{ Ship when you can fill the order complete.	<i>Proctor</i>	—Referring to your telegram of . . .
		<i>Prodding</i>	—Referring to our telegram of . . .
		<i>Prodigal</i>	—Telegraph by night message.
		<i>Prodigy</i>	—Telegraph immediately.
		<i>Profanate</i>	—Why do you not telegraph?
		<i>Profane</i>	—Blue-print will be mailed.
		<i>Profession</i>	—What substitution can you make?
		<i>Professor</i>	—Instructions by mail.
		<i>Proffer</i>	—Answer by mail.

<i>Peakish</i>	—Ship by steamer to . . . via	<i>Pecan</i>	—{ Have you shipped us any . . . on our order of ?
<i>Peasant</i>	—{ Our order of . . . not yet received.	<i>Pedal</i>	—{ What is the lowest rate of freight to . . . ?
<i>Pebble</i>	—{ Send tracer for shipment at once.	<i>Pediment</i>	—{ Make lowest possible contract of freight to destination.
<i>Peedom</i>	—{ In shipping give preference over all others to order of		
<i>Peevish</i>	—We can ship	<i>Pension</i>	—{ We cannot obtain through rate of freight to
<i>Pegasus</i>	—We will ship.	<i>Pentagon</i>	—To-day or to-morrow.
<i>Pegmatite</i>	—We can ship on receipt of order.	<i>Penury</i>	—In a few days.
<i>Pegged</i>	—If ordered at once could ship . . .	<i>Pepsin</i>	—The middle of this week.
<i>Peguan</i>	—We will make a shipment.	<i>Perfume</i>	—The last of this week.
<i>Pelting</i>	—We will complete your order of . . in about	<i>Perjure</i>	—In about a week.
<i>Penalty</i>	—We cannot ship for a week or two.	<i>Perplex</i>	—The first of next week.
<i>Penance</i>	—We have shipped your order of . .	<i>Perspire</i>	—The middle of next week.
<i>Penitent</i>	—Your telegram was received after goods had been shipped.	<i>Persist</i>	—The last of next week.
<i>Penman</i>	—{ We have entered your order of . . and will ship soon as possible.	<i>Perturb</i>	—In about two weeks.
<i>Penning</i>	—{ Please send explicit shipping instructions.	<i>Petulant</i>	—Answer by telegraph at our expense.
	—Rate of freight to . . . is	<i>Pewler</i>	—Your letter was received in time.
		<i>Phalanx</i>	—Your letter was not received in time.
		<i>Phantom</i>	—Your telegram was received in time.
		<i>Pharisee</i>	—{ Your telegram was not received in time.

CONCERNING CLASSES OF GOODS

<i>Pianist</i>	—Pitcher Spout Pumps.	<i>Placard</i>	—Fitted with Metallic Valves.
<i>Picking</i>	—Cistern Pumps.	<i>Placid</i>	—Fitted with Hose Attachments.
<i>Picnic</i>	—Set-length Lift Pumps.	<i>Plague</i>	—Fitted for Lead Pipe.
<i>Pilferer</i>	—Set-length Force Pumps.	<i>Planet</i>	—Fitted for Iron Pipe.
<i>Pigeon</i>	—Hand and House Force Pumps.	<i>Planish</i>	—Fitted for Lead and Iron Pipe.
<i>Pigment</i>	—Deep Well Pump Standards.	<i>Plaster</i>	—Without Brass Soldering Tubes.
<i>Pigmy</i>	—Wind Mill Pump Standards.	<i>Plate</i>	—With Cock on Spout.
<i>Pilgrim</i>	—{ Anti-freezing Three-way Wind Mill Pumps.	<i>Plating</i>	—{ With . . . Feet of Hose and Discharge Nozzle.
<i>Pillage</i>	—{ Polished Iron Cylinders, or Working Sections.	<i>Platen</i>	—Fitted for 1 inch Suction Pipe.
<i>Pillow</i>	—{ Brass Lined Iron Cylinders or Working Sections.	<i>Platonic</i>	— " " 1 1/4 " " "
<i>Pinching</i>	—{ Brass Tube Cylinders, or Working Sections.	<i>Platoon</i>	— " " 1 1/2 " " "
<i>Pinnacle</i>	—Rotary Force Pumps.	<i>Platter</i>	— " " 2 " " "
<i>Piquant</i>	—{ Double-acting Horizontal Force Pumps.	<i>Plaudit</i>	— " " 2 1/2 " " "
<i>Piracy</i>	—Hydraulic Rams.	<i>Plausible</i>	— " " 3 " " "
<i>Pirate</i>	—Repairs for Pumps.	<i>Plausive</i>	— " " 1 inch Discharge Pipe.
<i>Pittance</i>	—Fitted with Inside Attachments.	<i>Plastron</i>	— " " 1 1/4 " " "
		<i>Playful</i>	— " " 1 1/2 " " "
		<i>Playing</i>	— " " 2 " " "
		<i>Pleading</i>	— " " 2 1/2 " " "
		<i>Pleader</i>	— " " 3 " " "

CONCERNING QUOTATIONS AND TERMS

<i>Pledge</i>	—At what price can you furnish?	<i>Plentiful</i>	—Is your offer of . . . still good?
<i>Pledging</i>	—{ How soon and at what price can you furnish?	<i>Pleonasm</i>	—Will you hold the quotation open?
<i>Plenteous</i>	—Give us your lowest quotation on . .	<i>Pliable</i>	—{ How long will you hold the quotation open?
<i>Flowing</i>	—We quote on your specifications . . .	<i>Predicted</i>	—Terms: Cash with the order.
<i>Flowboy</i>	—{ We quote you for immediate acceptance, as follows:	<i>Preface</i>	—Terms: Cash on receipt of invoice.
<i>Praying</i>	—{ We accept your order at prices named.	<i>Prefix</i>	—Terms: Sight Draft with bill lading.
<i>Preached</i>	—{ We cannot accept your order at prices named.	<i>Prefixd</i>	—Terms: 30 days, net.
<i>Preaching</i>	—{ We cannot hold this quotation open.	<i>Prejudice</i>	—Terms: 60 days, net.
<i>Predict</i>	—{ We cannot sell the goods at that price now; our quotation was for immediate acceptance.	<i>Premium</i>	—{ Terms: 60 days, less two per cent. discount for cash in 10 days.
		<i>Preside</i>	—F. O. B. Cars.
		<i>Pretend</i>	—Freight allowance . . cts. per 100 lbs.

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COMPARATIVE TABLE

SHOWING EQUIVALENTS OF LIQUID MEASURES AND WEIGHTS

Measures and Weights for Com- parison	MEASURE AND WEIGHT EQUIVALENTS OF ITEMS IN FIRST COLUMN								
	U. S. Gallon	Imp'l Gallon	Cubic Inch	Cubic Foot	Cubic Metre	Litre	*Vedro	*Pood	Pound
U. S. Gallon.....	1	.833	231	.1337	.00878	3.785	.308	.231	8.33
Imperial Gallon.....	1.20	1	277.27	.1604	.00454	4.542	.369	.277	10
Cubic Inch.....	.0043	.00858	1	.00057	.000016	.0169	.00132	.001	.0358
Cubic Foot.....	7.48	6.235	1728	1	.02827	28.312	2.304	1.728	62.355
Cubic Metre.....	264.17	220.05	61023	35.319	1	1000	81.364	61.023	2200.54
Litre.....	.26417	.2200	61.023	.0353	.001	1	.08136	.06102	2.2005
* { Vedro.....	3.249	2.706	750.1	.4344	.01228	12.29	1	.7501	27.06
{ Pood.....	4.328	3.607	1000	.578	.01636	16.361	1.333	1	36.07
Pound.....	.12	.1	27.72	.016	.00045	.454	.0369	.0277	1

* Vedro and Pood are a Russian measure and weight respectively.

CONVENIENT TO KNOW { A common water pail holds 19 lbs., or 2.272 U. S. gallons.
 { A miner's inch of water equals 12 U. S. gallons per minute.
 { One metre equals 39.37 inches, or 3.281 feet.

TABLE SHOWING CONTENTS IN GALLONS OF ROUND TANKS AND CISTERNS

Diameter in Feet	*DEPTH IN FEET AND CONTENTS IN GALLONS									
	*1	4	5	6	7	8	9	10	11	12
4	93.99	376.	470.	564.	658.	752.	846.	940.	1034.	1128.
5	146.87	588.	734.	881.	1028.	1175.	1322.	1469.	1616.	1763.
6	211.50	847.	1058.	1269.	1481.	1692.	1904.	2115.	2327.	2538.
7	287.86	1152.	1439.	1727.	2015.	2303.	2591.	2879.	3167.	3455.
8	375.98	1504.	1880.	2256.	2632.	3008.	3384.	3760.	4136.	4512.
9	475.35	1904.	2379.	2855.	3331.	3806.	4282.	4759.	5235.	5711.
10	587.47	2350.	2938.	3525.	4113.	4700.	5288.	5875.	6462.	7050.
11	710.84	2844.	3534.	4265.	4976.	5687.	6398.	7109.	7819.	8531.
12	845.97	3384.	4230.	5076.	5922.	6768.	7614.	8460.	9306.	10152.

* To ascertain contents of a round tank or cistern of the above diameters, and of depth not given, multiply the contents of tank one foot deep by the required depth in feet.

TABLE SHOWING CONTENTS IN GALLONS OF SQUARE TANKS AND CISTERNS

Dimensions of Bottom in Feet	*DEPTH IN FEET AND CONTENTS IN GALLONS									
	*1	4	5	6	7	8	9	10	11	12
4 x 4	119.68	479.	598.	718.	838.	957.	1077.	1197.	1316.	1436.
5 x 5	187.00	748.	935.	1202.	1309.	1516.	1683.	1870.	2057.	2244.
6 x 6	269.28	1077.	1346.	1616.	1885.	2154.	2424.	2693.	2968.	3231.
7 x 7	366.52	1466.	1833.	2199.	2566.	2922.	3299.	3665.	4032.	4398.
8 x 8	478.72	1915.	2394.	2872.	3351.	3830.	4308.	4787.	5266.	5745.
9 x 9	605.88	2424.	3029.	3635.	4241.	4847.	5453.	6059.	6665.	7272.
10 x 10	748.00	2992.	3740.	4488.	5236.	5984.	6732.	7480.	8228.	8976.
11 x 11	905.08	3620.	4525.	5430.	6336.	7241.	8146.	9051.	9956.	10861.
12 x 12	1077.12	4308.	5386.	6463.	7540.	8617.	9694.	10771.	11848.	12925.

* To ascertain the contents of a square tank or cistern of depth not given, multiply the contents of tank one foot deep as in table by the required depth in feet.

Valuable Engineering Information

RULES FOR CAPACITY, POWER AND SPEED

THE NECESSARY PARTS OF A PUMP are: the Cylinder, the Plunger and its Valve, the Check or Lower Valve, the Suction Pipe, and the Pump-rod or Piston-rod. The satisfactory operation of the Pump depends on the perfection of its parts. As a perfect Vacuum cannot be obtained 25 feet is practically as high as water can be drawn vertically by Suction, and we even recommend Well Pump cylinders or Working Barrels to be submerged wherever practicable. In any case the nearer the Pump's working parts are to the water level the better.

FOR READY REFERENCE we give, on other pages, a Table of Diameters of Pump Cylinders, showing capacity per stroke in gallons, with different lengths of strokes, and Areas of Circles up to 24 inches; also some useful formulas for obtaining Capacity, Required Power, and Speed of Pumps, and a table showing the Power required for pumping to various elevations, and amount of water discharged per minute; also some other useful tables.

CAPACITY.—To compute the capacity of any Single-acting Pump, apply the following

Rule:—Square the diameter (in inches) of the Cylinder, multiply this by .7854, and the result (which is the area of the circle of Cylinder) by the length of stroke in inches. This gives the capacity in cubic inches per stroke (or revolution). Multiply this by the number of strokes per minute, and divide the product by 231 (the number of cubic inches in a gallon of water), and the result will be the capacity or amount of water the Pump will discharge per minute.

POWER.—To compute the Power Required to raise a given amount of water per minute to a certain height, apply the following

Rule:—Multiply the number of gallons the Pump discharges per minute by 8.338 (the weight in pounds of one gallon of water), and the product by the total number of feet the water is to be elevated above the supply. The result is the Power Required, in foot-pounds; divide this by 33,000 (the number of foot-pounds of one horse-power), and you have the Theoretical Horse-power necessary to do the work. About 25 per cent must be added to this to compensate for friction, slip of valves, etc. The per cent efficiency of a Pump is the per cent the actual capacity is of its theoretical capacity working under given conditions.

SPEED.—To compute the number of Strokes per minute necessary to discharge a given quantity of water (the diameter of Cylinder and length of stroke being known), apply the following

Rule:—Divide the amount of water to be discharged (in gallons) per minute by the capacity (in gallons) per stroke (see table—or rule for capacity above), and you have the number of strokes per minute necessary to do the work. It may be well to note that the piston of a Power Pump should travel a speed not greater than 100 feet per minute.

SPEED OF PULLEYS.—In calculating either the Speed or Capacity of a Power Pump operated by Pulleys, the diameter and speed of either the Driving or the Driven Pulley must be known; and either the diameter or the speed of the other Pulley must be known, when the required diameter, or the required speed (as the case may be), can readily be determined by the following Rules: (By speed is meant revolutions per minute.)

Required the Diameter of the Driving Pulley, the other three factors being known:

RULE:—Multiply the diameter of the Driven Pulley by its revolutions and divide the product by the revolutions of the Driving Pulley.

Required the Diameter of the Driven Pulley, the other three factors being known:

RULE:—Multiply the diameter of the Driving Pulley by its revolutions and divide the product by the revolutions of the Driven Pulley.

Required the Speed of the Driving Pulley, the other three factors being known:

RULE:—Multiply the diameter of the Driven Pulley by its revolutions and divide by the diameter of the Driving Pulley.

Required the Speed of the Driven Pulley, the other three factors being known:

RULE:—Multiply the diameter of the Driving Pulley by its revolutions and divide by the diameter of the Driven Pulley.

IN ANY CASE, the diameter of the Driving Pulley multiplied by its revolutions equals the diameter of the Driven Pulley multiplied by its revolutions; and thus any three of the quantities being known, the other may readily be determined. In other words: using *Proportion* or the "RULE OF THREE:" The speed of the Driving Pulley is to the diameter of the Driven Pulley as the speed of the Driven Pulley is to the diameter of the Driving Pulley.

N. B.—**SPEED OF GEARING** is estimated in same way, substituting the number of gear teeth for "diameter."

Engineering Information—Continued

FACTS, FIGURES AND FORMULAS

The **areas** of circles are to each other as the **squares** of their respective **diameters**. In other words, doubling the Diameter of a Pipe or Cylinder increases its capacity (area of circle) four times.

Atmospheric pressure (at sea level) is exerted in every direction to the extent of 14.7 pounds to the square inch. This pressure will maintain a column of water 33.9 feet high, *i. e.*, when the normal pressure in the column (the pipe or tubing) is relieved by the creation of a vacuum. The above is therefore the **theoretical vertical** distance that water may be drawn by suction. The suction capacity of a Pump decreases as the altitude (distance above sea level) increases. In practice, 25 feet is about the maximum suction (vertical) distance recommended for pumping.

Every foot of height in a column of water represents .434 pounds pressure to the square inch; in common practice, however, it is estimated that every foot in height represents one-half pound pressure to the square inch.

A cubic foot of water weighs 62.36 lbs.

A gallon of water weighs 8.34 lbs.

A gallon of water contains 231 cubic inches.

A cubic foot of water contains 1728 cubic inches.

A cubic foot of water contains 7.48 gallons.

VALUABLE FORMULAS.—From the foregoing rules and equivalents may be deduced the following *Concise Formulas* for computing quickly the Capacity, Required Power, and Speed of Pumps.

Let

D = Diameter of Pump Cylinder in inches.

S = Length of stroke in inches.

N = Number of strokes per minute.

Q = Quantity of water raised per minute in gallons.

H = Height in feet water is elevated from surface; or height of a column of water.

Then

$D^2 \times .7854$ = The area of a circle (of Cylinder) of a given diameter.

$D^2 S \times .7854$ = Capacity of Pump per stroke in cubic inches.

$D^2 S \times .7854$ = Capacity of Pump per stroke in gallons.

$\frac{D^2 S \times .7854}{231}$ = Capacity of Pump per stroke in cubic feet.

$\frac{D^2 S \times .7854 \times 8.34}{1728}$ = Capacity of Pump per stroke in pounds of water.

$D^2 S \times .7854 N$ = Capacity of Pump per minute in cubic inches.

$\frac{D^2 S \times .7854 N}{231}$ = Capacity of Pump per minute in gallons (=Q).

$\frac{D^2 S \times .7854 N}{1728}$ = Capacity of Pump per minute in cubic feet.

$\frac{Q \times 8.34}{33,000} = \left\{ \begin{array}{l} \text{Horse-power required to elevate a given quantity of water} \\ \text{per minute to a certain height.} \end{array} \right.$

$H \times .434$ = Pounds pressure (per square inch) of a column of water.

$D^2 \times .7854 (H \times .434) = \left\{ \begin{array}{l} \text{Pounds pressure at a point in a Pipe or Cylinder, "H"} \\ \text{being the vertical distance (in ft.) to surface of water} \\ \text{from said point, and "D" the Diameter of Cylinder} \\ \text{or Pipe (in inches) at said point.} \end{array} \right.$

$\left(\frac{Q}{D^2 S \times .7854} \right) \times \frac{231}{1} = \frac{Q}{D^2 S \times .0034} = \left\{ \begin{array}{l} \text{Number of strokes per minute necessary to} \\ \text{raise a given quantity of water in gallons.} \end{array} \right.$

TABLE SHOWING QUANTITY OF WATER Discharged per Stroke or Revolution by a Single-Acting Pump

THE DIAMETER OF CYLINDER AND LENGTH OF STROKE BEING KNOWN

THERE IS ALSO APPENDED A

Table of Diameters and Areas of Circles

The Diameters of Circles and Cylinders being identical

Diameter of Pump Cylinder in inches	LENGTH OF STROKE IN INCHES, WITH CAPACITY PER STROKE IN GALLONS										Diameters and Areas	
	1	2	3	4	5	6	8	10	12	14	Diam. of Circle (Pump Cyl.)	Area of Circle (Pump Cyl.) in sq. ins.
	Stroke in Box Headings above—Capacity in Columns below											
1	.0034	.0068	.0102	.0136	.0170	.0204	.0272	.0340	.0408	.0476	1	.7854
1¼	.0053	.0106	.0159	.0212	.0266	.0319	.0425	.0531	.0637	.0742	1¼	1.2271
1½	.0076	.0153	.0229	.0306	.0382	.0459	.0612	.0765	.0918	.1064	1½	1.7671
1¾	.0104	.0208	.0312	.0416	.0521	.0625	.0833	.1041	.1249	.1456	1¾	2.4043
2	.0136	.0272	.0408	.0544	.0680	.0816	.1088	.1360	.1632	.1904	2	3.1416
2¼	.0172	.0344	.0516	.0688	.0860	.1033	.1377	.1721	.2071	.2408	2¼	3.9760
2½	.0212	.0425	.0637	.0850	.1062	.1275	.1700	.2125	.2550	.2968	2½	4.9087
2¾	.0257	.0514	.0771	.1028	.1285	.1543	.2057	.2571	.3085	.3598	2¾	5.9393
3	.0306	.0612	.0918	.1224	.1530	.1836	.2448	.3060	.3672	.4284	3	7.0686
3¼	.0359	.0719	.1078	.1438	.1795	.2156	.2875	.3594	.4313	.5026	3¼	8.2957
3½	.0416	.0833	.1249	.1666	.2082	.2499	.3332	.4165	.4998	.5824	3½	9.6211
3¾	.0479	.0957	.1435	.1914	.2393	.2871	.3828	.4785	.5743	.6706	3¾	11.044
4	.0544	.1088	.1632	.2176	.2720	.3264	.4352	.5440	.6528	.7616	4	12.566
4¼	.0688	.1377	.2065	.2754	.3442	.4131	.5508	.6885	.8262	.9632	4¼	15.904
4½	.0850	.1700	.2550	.3400	.4250	.5100	.6800	.8500	1.0200	1.1900	4½	19.635
5	.1028	.2057	.3085	.4114	.5142	.6171	.8228	1.0285	1.2342	1.4398	5	23.758
5¼	.1224	.2448	.3672	.4896	.6120	.7344	.9792	1.2240	1.4688	1.7136	5¼	28.274
5½	.1456	.2912	.4368	.5824	.7280	.8736	1.1648	1.4560	1.7472	2.0384	5½	33.484
6	.1632	.3264	.4896	.6528	.8160	.9792	1.3056	1.6320	1.9584	2.2848	6	38.484
6¼	.1836	.3672	.5508	.7344	.9180	1.1016	1.4688	1.8360	2.2032	2.5704	6¼	44.176
6½	.2065	.4131	.6197	.8262	1.0328	1.2394	1.6520	2.0640	2.4760	2.8880	6½	50.265
7	.2176	.4352	.6528	.8704	1.0880	1.3056	1.7408	2.1760	2.6112	3.0464	7	58.904
7¼	.2408	.4816	.7224	.9632	1.2038	1.4444	1.9256	2.4064	2.8872	3.3680	7¼	67.160
7½	.2632	.5264	.7896	1.0528	1.3160	1.5792	2.1056	2.6320	3.1584	3.6848	7½	75.540
8	.2720	.5440	.8160	1.0880	1.3600	1.6320	2.1760	2.7200	3.2640	3.8080	8	84.016
8¼	.3060	.6120	.9180	1.2240	1.5300	1.8360	2.4480	3.0600	3.6720	4.2840	8¼	93.784
8½	.3264	.6528	.9792	1.3056	1.6320	1.9584	2.6112	3.2640	3.9168	4.5696	8½	103.856
9	.3400	.6800	1.0200	1.3600	1.7000	2.0400	2.7200	3.4000	4.0800	4.7600	9	114.688
9¼	.3672	.7344	1.0968	1.4448	1.7984	2.1520	2.8672	3.5840	4.2976	5.0112	9¼	125.936
9½	.3828	.7656	1.1484	1.5312	1.9120	2.2928	3.0544	3.8160	4.5776	5.3392	9½	137.696
10	.4080	.8160	1.2240	1.6320	2.0400	2.4480	3.2640	4.0800	4.8960	5.7120	10	149.776
10¼	.4352	.8704	1.3056	1.7408	2.1760	2.6112	3.4624	4.3248	5.1872	6.0496	10¼	162.208
10½	.4528	.9056	1.3600	1.8160	2.2320	2.6768	3.5584	4.4160	5.3088	6.1912	10½	175.040
11	.4760	.9520	1.4160	1.8880	2.3600	2.8320	3.7440	4.6560	5.5680	6.4800	11	188.272
11¼	.5016	.10032	1.5024	2.0032	2.5040	3.0048	3.9392	4.8736	5.8080	6.7424	11¼	202.016
11½	.5184	.10368	1.5504	2.0672	2.5840	3.1136	4.0176	4.9360	5.8544	6.7728	11½	216.272
12	.5440	.10880	1.6320	2.1760	2.7200	3.2640	4.3520	5.4400	6.5280	7.6160	12	231.168
12¼	.5712	.11424	1.7040	2.2720	2.8320	3.3936	4.5216	5.6448	6.7680	7.8912	12¼	246.688
12½	.5896	.11792	1.7568	2.3456	2.9040	3.4880	4.6496	5.8112	6.9728	8.1344	12½	262.736
13	.6160	.12320	1.8480	2.4640	3.0400	3.6480	4.8640	6.0800	7.2960	8.5120	13	279.488
13¼	.6448	.12896	1.9392	2.5888	3.1840	3.7968	5.0176	6.2336	7.4608	8.6880	13¼	296.960
13½	.6632	.13264	2.0016	2.6704	3.2800	3.9040	5.1520	6.3680	7.6032	8.8384	13½	314.160
14	.6912	.13824	2.1024	2.8032	3.4400	4.0800	5.4400	6.7040	7.9680	9.2320	14	332.016
14¼	.7200	.14400	2.2032	2.9376	3.6000	4.2720	5.6832	7.0048	8.3264	9.6480	14¼	350.496
14½	.7392	.14784	2.2560	3.0144	3.6800	4.3680	5.7984	7.1328	8.4608	9.7856	14½	360.064
15	.7680	.15360	2.3568	3.1488	3.8400	4.5600	6.0480	7.4080	8.7680	10.1280	15	379.680
15¼	.7984	.15936	2.4576	3.2832	3.9920	4.7520	6.2976	7.6992	9.0976	10.4960	15¼	399.424
15½	.8176	.16320	2.5104	3.3600	4.0800	4.8480	6.4032	7.8016	9.2096	10.6080	15½	409.776
16	.8480	.16960	2.6112	3.4816	4.2560	5.0240	6.6624	8.1600	9.5168	10.9216	16	430.240
16¼	.8792	.17536	2.7120	3.6160	4.4160	5.2160	6.9216	8.4288	9.7904	11.1936	16¼	450.912
16½	.8976	.17856	2.7648	3.6864	4.4800	5.2800	7.0080	8.5376	9.9040	11.3056	16½	461.376
17	.9296	.18592	2.8656	3.8112	4.6400	5.4720	7.2864	8.8128	10.1616	11.5104	17	482.016
17¼	.9616	.19168	2.9664	3.9456	4.8000	5.6640	7.5456	9.0720	10.4224	11.7712	17¼	502.816
17½	.9800	.19520	3.0192	4.0160	4.8800	5.7440	7.6544	9.1808	10.5296	11.8784	17½	513.376
18	1.0112	.20160	3.1136	4.1408	5.0400	5.9360	7.9200	9.4400	10.7840	12.0832	18	534.240
18¼	1.0432	.20736	3.2144	4.2752	5.2000	6.1280	8.1792	9.6992	10.9936	12.2928	18¼	555.296
18½	1.0624	.21088	3.2672	4.3456	5.2800	6.2080	8.2880	9.8080	11.1024	12.4000	18½	565.760
19	1.0944	.21712	3.3680	4.4800	5.4400	6.3920	8.5472	10.0672	11.3616	12.6096	19	586.816
19¼	1.1264	.22288	3.4688	4.6144	5.6000	6.5840	8.8064	10.3264	11.6208	12.8192	19¼	607.984
19½	1.1456	.22640	3.5216	4.6848	5.6800	6.6640	8.9152	10.4352	11.7296	12.9264	19½	618.448
20	1.1776	.23280	3.6160	4.8096	5.8400	6.8480	9.1744	10.6944	11.9888	13.1360	20	640.000
20¼	1.2096	.23856	3.7168	4.9440	6.0000	7.0400	9.4336	10.9536	12.2480	13.3456	20¼	661.216
20½	1.2288	.24208	3.7696	5.0144	6.0800	7.1200	9.5424	11.0624	12.3568	13.4528	20½	671.680
21	1.2608	.24832	3.8656	5.1392	6.2400	7.3120	9.8016	11.3216	12.6160	13.6624	21	693.376
21¼	1.2928	.25408	3.9664	5.2736	6.4000	7.5040	10.0608	11.5808	12.8752	13.8720	21¼	714.688
21½	1.3120	.25760	4.0192	5.3440	6.4800	7.5840	10.1700	11.6896	12.9840	13.9792	21½	725.152
22	1.3440	.26384	4.1136	5.4688	6.6400	7.7760	10.4288	11.9488	13.2432	14.1888	22	746.816
22¼	1.3760	.26960	4.2144	5.6032	6.8000	7.9680	10.6880	12.2080	13.5024	14.3984	22¼	768.096
22½	1.3952	.27312	4.2672	5.6736	6.8800	8.0480	10.7970	12.3168	13.6112	14.5056	22½	778.560
23	1.4272	.27936	4.3632	5.7984	7.0400	8.2400	11.0560	12.5760	13.8704	14.7152	23	800.000
23¼	1.4592	.28512	4.4640	5.9328	7.2000	8.4320	11.3152	12.8352	14.1296	14.9248	23¼	821.312
23½	1.4784	.28864	4.5168	6.0032	7.2800	8.5120	11.4240	12.9440	14.2384	15.0320	23½	831.776
24	1.5104	.29504	4.6112	6.1280	7.4400	8.7040	11.6832	13.2032	14.4976	15.2416	24	853.376

THE CAPACITIES IN GALLONS given in the foregoing table are for a Single-Acting Pump, making one complete stroke or revolution.

Please remember

In using table for Duplex and Triplex Pumps, that:—

- A Two-Cylinder Single-Acting Pump has double
- A Three-Cylinder, or Triplex, Single-Acting Pump has treble
- A Single Cylinder, Double-Acting Pump has double
- A Duplex Double-Acting Pump has four times
- A Triplex Double-Acting Pump has six times

the capacity as given per stroke or revolution.

TO OBTAIN THE CAPACITY of a Pump with diameter of Cylinder given in the table, but with a longer stroke than 14 inches (the longest stroke given in table), add or multiply the capacity to represent the required length of stroke. For instance: The capacity of a Cylinder with an 18-inch stroke would be the same as that (having the same diameter) of a 12-inch stroke Cylinder, added to the capacity of a 6-inch stroke Cylinder; or the same result may be obtained by multiplying the capacity of a Cylinder with 6-inch stroke by 3.

TABLE SHOWING QUANTITY OF WATER DISCHARGED PER MINUTE AT DIFFERENT ELEVATIONS

AND POWER REQUIRED TO OPERATE THE PUMP

Based on 62½ per cent Pump Efficiency

Elevation in Feet	POWER REQUIRED FOR PUMPING, AND GALLONS OF WATER RAISED PER MINUTE								
	1 H. P.	2 H. P.	5 H. P.	10 H. P.	15 H. P.	20 H. P.	30 H. P.	40 H. P.	50 H. P.
	Power in Box Headings above—Gallons per Minute in Columns below.								
1	2500	5000	12500	25000	37500	50000	75000	100000	125000
5	500	1000	2500	5000	7500	10000	15000	20000	25000
10	250	500	1250	2500	3750	5000	7500	10000	12500
15	166.66	333.33	833.33	1666.66	2500	3333.33	5000	6666.66	8333.33
20	125	250	625	1250	1875	2500	3750	5000	6250
25	100	200	500	1000	1500	2000	3000	4000	5000
30	83.33	166.66	416.66	833.33	1250	1666.66	2500	3333.33	4166.66
35	71.4	142.8	357.14	714.28	1071.43	1428.57	2142.86	2857.14	3571.43
40	62.5	125	312.5	625	937.5	1250	1875	2500	3125
45	55.5	111.11	277.77	555.55	833.33	1111.11	1666.66	2222.22	2777.77
50	50	100	250	500	750	1000	1500	2000	2500
55	45.4	91	227.27	454.55	681.82	909.9	1333.64	1818.18	2272.73
60	41.66	83.33	208.33	416.66	625	833.33	1250	1666.66	2083.33
65	38.5	76.875	192.308	384.62	576.92	769.23	1153.84	1538.48	1923.08
70	35.6	71.428	178.57	357.14	535.71	714.28	1071.42	1428.57	1785.71
75	33.33	66.666	166.666	333.33	500	666.66	1000	1333.33	1666.66
80	31.25	62.5	156.25	312.5	468.75	625	937.50	1250	1562.5
90	27.75	55.565	138.88	277.77	416.666	555.55	833.33	1111.11	1388.8
100	25	50	125	250	375	500	750	1000	1250
150	16.666	33.33	83.33	166.666	250	333.33	500	666.66	833.33
200	12.5	25	62.5	125	187.5	250	375	500	625
250	10	20	50	100	150	200	300	400	500
300	8.33	16.666	41.666	83.33	125	166.66	250	333.33	416.66
350	7	14.25	35.714	71.43	107.143	142.86	214.28	285.72	357.14
400	6.25	12.5	31.25	62.5	93.75	125	187.50	250	312.5
450	5.5	11.11	27.77	55.55	83.33	111.11	166.66	222.22	277.7
500	5	10	25	50	75	100	150	200	250
600	4.166	8.33	20.83	41.666	62.5	83.33	125	166.66	208.33
700	3.5	7.142	17.857	35.71	53.57	71.43	107.14	142.86	178.57
800	3	6.25	15.625	31.25	46.875	62.5	93.75	125	156.25
900	2.666	5.5	13.88	27.77	41.666	55.55	83.33	111.11	138.8
1000	2.5	5	12.5	25	37.5	50	75	100	125

The above table may be used to advantage where the Horse Power is given, and it is required to know the quantity of water per minute the Pump will force to a certain height; also, where the height the water is to be raised and the quantity of water needed per minute are known, the required Horse Power may be ascertained approximately by referring to the elevation (as given in table) and then to the number of gallons nearest the number required, and the Horse Power at the top of the column containing this number will be the approximate Horse Power required to pump the water.

TABLE SHOWING EQUIVALENTS OF PRESSURE AND HEAD OF WATER

HEAD IN FEET AND EQUIVALENT PRESSURE IN POUNDS						PRESSURE IN POUNDS AND EQUIVALENT HEAD IN FEET					
5 to 60 feet		70 to 180 feet		200 to 1,000 feet		5 to 60 Lbs.		70 to 170 Lbs.		180 to 500 Lbs.	
Feet Head	Lbs. Press.	Feet Head	Lbs. Press.	Feet Head	Lbs. Press.	Lbs. Press.	Feet Head	Lbs. Press.	Feet Head	Lbs. Press.	Feet Head
5	2.17	70	30.3	200	86.6	5	11.5	70	161.6	180	415.6
10	4.33	80	34.6	250	108.2	10	23.0	80	184.7	190	438.9
15	6.50	90	39.0	300	129.9	15	34.6	90	207.8	200	461.7
20	8.66	100	43.3	350	151.5	20	46.2	100	230.9	225	519.5
25	10.83	110	47.6	400	173.2	25	57.7	110	253.9	250	577.2
30	12.99	120	52.0	500	216.5	30	69.3	120	277.0	275	643.0
35	15.16	130	56.3	600	259.8	35	80.8	130	300.1	300	692.7
40	17.32	140	60.6	700	303.1	40	92.3	140	323.2	325	750.4
45	19.49	150	65.0	800	346.4	45	103.9	150	346.3	350	808.1
50	21.65	160	69.2	900	389.7	50	115.4	160	369.4	400	922.6
60	26.09	180	78.0	1000	433.0	60	138.5	170	392.5	500	1154.5

FRICTION OF WATER IN PIPES

Friction loss, in pounds pressure per square inch, for each 100 feet of length of different sizes of clean iron pipe discharging given quantities of water per minute. G. A. ELLIS, C. E.

Gallons per Minute	SIZES OF PIPES—INSIDE DIAMETER														
	¾ in.	1 in.	1¼ in.	1½ in.	2 in.	2½ in.	3 in.	4 in.	6 in.	8 in.	10 in.	12 in.	14 in.	16 in.	18 in.
5	3.3	0.84	0.31	0.12	0.05	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
10	13.0	3.16	1.05	0.47	0.12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
15	28.7	6.98	2.38	0.97	0.30	0.11	.....	.....	.....	.....	.....	.....	.....	.....	.....
20	50.4	12.3	4.07	1.66	0.42	0.15	.....	.....	.....	.....	.....	.....	.....	.....	.....
25	78.0	19.0	6.40	2.62	0.51	0.21	0.10	.....	.....	.....	.....	.....	.....	.....	.....
30	27.5	9.15	3.75	0.91	0.33	0.11	.....	.....	.....	.....	.....	.....	.....	.....
35	37.0	12.4	5.05	1.20	0.45	0.17	.....	.....	.....	.....	.....	.....	.....	.....
40	48.0	16.1	6.52	1.60	0.52	0.22	.....	.....	.....	.....	.....	.....	.....	.....
45	20.2	8.15	2.00	0.65	0.28	.....	.....	.....	.....	.....	.....	.....	.....
50	24.9	10.0	2.44	0.81	0.35	0.09	.....	.....	.....	.....	.....	.....	.....
75	56.1	22.4	5.32	1.80	0.74	0.17	.....	.....	.....	.....	.....	.....	.....
100	39.0	9.46	3.20	1.31	0.33	0.05	.....	.....	.....	.....	.....	.....
125	14.9	4.89	1.99	0.53	.....	.....	.....	.....	.....	.....	.....
150	21.2	7.0	2.85	0.69	0.10	.....	.....	.....	.....	.....	.....
175	28.1	9.46	3.85	1.00	.....	.....	.....	.....	.....	.....	.....
200	37.5	12.47	5.02	1.22	0.17	.....	.....	.....	.....	.....	.....
250	19.66	7.76	1.89	0.26	0.07	0.03	0.01	.....	.....	.....
300	11.2	2.66	0.37	0.09	0.04	.....	.....	.....	.....	.....
350	15.2	3.65	0.50	0.12	0.05	0.02	.....	.....	.....	.....
400	19.5	4.73	0.65	0.16	0.06	.....	.....	.....	.....	.....
450	25.0	6.01	0.81	0.20	0.07	0.03	.....	.....	.....	.....
500	30.8	7.43	0.96	0.25	0.09	0.04	0.017	0.009	0.005	.....
750	2.21	0.53	0.18	0.08	.....	.....	.....	.....
1000	3.88	0.94	0.32	0.13	0.062	0.036	0.020	.....
1250	1.46	0.49	0.20	.....	.....	.....	.....
1500	2.09	0.70	0.29	0.135	0.071	0.040	.....
1750	0.95	0.38	.....	.....	.....	.....
2000	1.23	0.49	0.234	0.123	0.071	.....
2250	0.63	.....	.....	.....	.....
2500	0.77	0.362	0.188	0.107	.....
3000	1.11	0.515	0.267	0.150	.....
3500	0.697	0.365	0.204	.....
4000	0.910	0.472	0.263	.....
4500	0.593	0.333	.....
5000	0.730	0.408	.....
Comparative Discharging Power of Pipes	√d ⁵	1	1.75	2.76	5.66	9.88	15.59	32.	88.2	181	316.2	498.8	733.4	1024.	1375.

**TABLE SHOWING APPROXIMATE ACTUAL HORSE POWER FOR OPERATING
DEMING TRIPLEX PUMPS UNDER DIFFERENT HEADS**

PLUNGERS		Revo- lutions per Minute	Capac- ity in Gals. per Minute	WORKING HEAD OR PRESSURE AND REQUIRED HORSE POWER					
Diam- eter	Stroke			50 feet Head or 21 lbs. Pressure	100 feet Head or 43 lbs. Pressure	150 feet Head or 65 lbs. Pressure	200 feet Head or 87 lbs. Pressure	250 feet Head or 108 lbs. Pressure	300 feet Head or 130 lbs. Pressure
2 in.	2 in.	60	4.8	.13	.20	.27	.35	.40	.45
2 1/2 "	2 "	60	7.6	.21	.32	.43	.55	.63	.71
3 "	3 "	60	11.	.31	.47	.63	.80	.92	1.0
3 1/2 "	3 "	60	16.	.44	.68	.91	1.2	1.3	1.5
4 "	4 "	60	22.	.61	.94	1.3	1.6	1.8	2.1
4 1/2 "	4 "	60	30.	.83	1.3	1.7	2.2	2.5	2.8
5 "	5 "	60	39.	1.4	1.7	2.2	2.8	3.2	3.7
5 1/2 "	5 "	60	59.	1.6	2.5	3.4	4.3	4.9	5.5
6 "	6 "	60	91.	2.5	3.9	5.2	6.6	7.6	8.5
6 1/2 "	6 "	60	147.	4.1	6.2	8.3	10.7	12.3	13.8
7 "	7 "	60	174.	4.8	7.4	9.9	12.6	14.5	16.3
7 1/2 "	7 "	60	240.	6.6	10.2	13.6	17.4	20.0	22.5
8 "	8 "	60	312.	8.6	13.3	17.7	22.6	26.0	29.2
8 1/2 "	8 "	60	354.	9.8	15.0	20.0	26.0	29.5	33.2
9 "	9 "	50	413.	11.5	17.6	23.5	30.0	34.5	38.8
10 "	10 "	50	510.	14.2	21.7	29.0	37.0	42.5	47.8

Actual Horse Power for 100-ft. lift is 1.7; for 200-ft. lift is 1.45, and for 300-ft. lift is 1.25 times the Theoretical Horse Power.

TABLE SHOWING WATER REQUIRED PER MINUTE TO FEED BOILERS

(Allowing 7 1/2 Gallons—one Cu. Ft. or 62 1/2 lbs.—per Horse Power per Hour)

H. P. Boiler	Feed water gallons.	H. P. Boiler	Feed water gallons	H. P. Boiler	Feed water gallons	H. P. Boiler	Feed water gallons	H. P. Boiler	Feed water gallons
20	2.50	60	7.50	110	13.75	190	23.75	400	50.00
25	3.12	65	8.12	120	15.00	200	25.00	450	56.25
30	3.75	70	8.75	130	16.25	225	28.12	500	62.50
35	4.40	75	9.38	140	17.50	250	31.25	600	75.00
40	5.00	80	10.00	150	18.75	275	34.38	700	87.50
45	5.62	85	10.63	160	20.00	300	37.50	800	100.00
50	6.25	90	11.25	170	21.25	325	40.62	900	112.50
55	6.88	100	12.50	180	22.50	350	43.75	1000	125.00

TABLE OF DEEP WELL PUMP PLUNGER LOADS—IN POUNDS

Lift in feet	DIAMETER OF CYLINDERS AND LOAD IN POUNDS											
	2 1/4	3 1/4	3 3/4	4 1/4	4 3/4	5 1/4	6 1/4	7 1/4	8 1/4	9	9 3/4	10
50	129	180	240	307	384	562	775	956	1228	1377	1535	1700
75	195	270	360	460	576	845	1162	1435	1840	2065	2300	2550
100	260	360	480	615	770	1125	1550	1910	2455	2755	3070	3400
125	320	450	600	770	960	1405	1940	2390	3070	3440	3835	4250
150	385	540	720	920	1150	1685	2325	2870	3685	4130	4600	5100
200	515	720	960	1230	1535	2250	3100	3825	4910	5510	6135	6800
250	645	900	1200	1535	1920	2810	3875	4780	6140	6885	7670	8500
300	775	1080	1440	1840	2305	3370	4650	5740	7370	8260	9200	10200
350	900	1260	1680	2150	2690	3935	5425	6690	8600	9640	10740	11900
400	1030	1440	1920	2455	3075	4500	6200	7650	9825	11015	12270	13600
500	1290	1800	2400	3070	3840	5620	7750	9560	12280	13770	15340	17000

APPROXIMATE SIZES OF CYLINDERS FOR HAND OR WIND MILL PUMPS

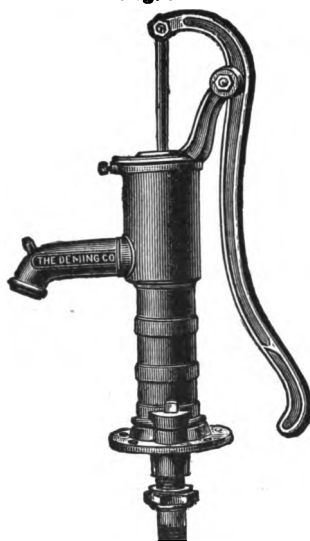
Depth of Well in feet (this depth or less).....	25	50	75	100	150	200
Diameter of Cylinder in Inches (this size or less).....	4	3 1/4	3	2 1/2	2 1/4	2
Diam. of Suction and Discharge Pipe (this size or greater)...	2	1 1/2	1 1/4	1 1/4	1 1/4	1

REVOLVING TOP CISTERN PUMP

EASTERN STYLE

WITH BOLTED BASE, BORED AND POLISHED CYLINDER

Fig. 120



Pumps of this class (with the Cylinder in the stock) will operate where the water is not over twenty-five feet below the Pump; the horizontal distance to the water does not materially affect its working; in any case a Foot Valve on the end of suction pipe is advantageous when there is no danger from freezing.

Freezing may be prevented by raising the lever to its extreme height, which trips the valves and allows the water to flow back after pumping when no foot valve is used. Fig. 120 for Export Trade is in great demand, as it is light, compact and durable. As listed below, this Pump is provided with a Brass Tube threaded for Iron Pipe Coupling. This tube is also used for soldering to Lead Pipe if desired. Fitted with Brass Valve Seat.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size of Cylinder	* Fitted for Pipe	Stroke	IRON		BRASS CYLINDER.	
				Cipher	Price	Cipher	Price
0	2 inch	1 inch	4 inch	Abacus	3 50	Abdominal	5 50
1	2 1/4 "	1 1/4 "	5 "	Abbacy	4 00	Aberrant	6 00
2	2 1/2 "	1 1/2 "	5 "	Abbot	4 50	Aberration	7 00
3	2 3/4 "	1 3/4 "	6 "	Abbreviate	5 00	Abeyance	8 00
4	3 "	1 3/4 "	7 "	Abdicate	5 50	Abhorrent	10 00
5	3 1/4 "	1 3/4 "	7 "	Abdication	6 50	Abiding	13 00
6	3 1/2 "	2 "	8 "	Abdomen	8 00	Ability	18 00
8	4 "	2 1/2 "	8 "	Abduce	10 00	Abjection	25 00

* Fitted for other sizes of Iron Pipe, American or Foreign, but always for American Pipe as listed, unless otherwise ordered.

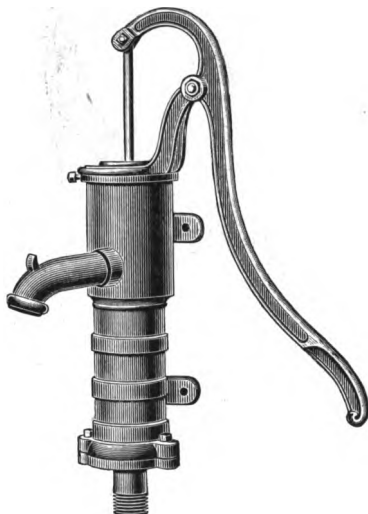
N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

REVOLVING TOP CISTERN PUMP

EASTERN STYLE

WITH BRACKETS, BORED AND POLISHED CYLINDER

Fig. 124.



The Cistern Pump represented by the above engraving is in its working parts similar to Fig. 120, but differs from it in having brackets for attaching to a wall, which is often found convenient. The attachment for suction pipe is bolted to the cylinder or stock. What is said about the use of Fig. 120 may also be said of Fig. 124. The brass valve seat and pipe coupling are combined in the shape of a flanged cast-brass tube, the bottom of which is threaded for iron pipe coupling; this tube is also used for soldering to lead pipe when the latter is used.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size of Cylinder	*Fitted for Pipe	Stroke	IRON		BRASS CYLINDER	
				Cipher	Price	Cipher	Price
0	2 inch	1 inch	4 inch	Adipose	3 50	Adroit	5 50
1	2 1/4 "	1 1/4 "	5 "	Adjutant	4 00	Adroitly	6 00
2	2 1/2 "	1 1/2 "	5 "	Adjutor	4 50	Adult	7 00
3	2 3/4 "	1 3/4 "	6 "	Adjutrix	5 00	Adverb	8 00
4	3 "	1 3/4 "	7 "	Admonish	5 50	Adverbial	10 00
5	3 1/4 "	1 3/4 "	7 "	Adobe	6 50	Adverse	13 00
6	3 1/2 "	2 "	8 "	Adonean	8 00	Adversely	18 00
8	4 "	2 1/4 "	8 "	Adonis	10 00	Aeolian	25 00

*Fitted for other sizes of Iron Pipe, American or Foreign, but always for American Pipe, as listed, unless otherwise ordered.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5

REVOLVING TOP CISTERN PUMP

EASTERN STYLE

WITH SCREWED BASE, BORED AND POLISHED CYLINDER

Fig. 121.



This Pump is identical with Fig. 120, except that the base is screwed to the cylinder instead of being bolted.

Where there is no danger of freezing, a foot valve on the end of suction pipe is advantageous. To prevent freezing, where foot valve is not used, raise the lever to extreme height, thus tripping the valves.

As listed below, this Pump is provided with a Brass Tube threaded for Iron Pipe Coupling. This tube is also used for soldering to Lead Pipe, if desired. Fitted with Brass Valve Seat.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size of Cylinder	Fitted for Pipe	Stroke	IRON		BRASS CYLINDER	
				Cipher	Price	Cipher	Price
0	2 inch	1 inch	4 inch	Abandon	3 50	Abettor	5 50
1	2 1/4 "	1 1/4 "	5 "	Abash	4 00	Abhor	6 00
2	2 1/2 "	1 1/2 "	5 "	Abate	4 50	Aboard	7 00
3	2 3/4 "	1 3/4 "	6 "	Abating	5 00	Abode	8 00
4	3 "	1 3/4 "	7 "	Abess	5 50	Abolish	10 00
5	3 1/4 "	1 3/4 "	7 "	Abbey	6 50	Abortive	13 00
6	3 1/2 "	2 "	8 "	Abduct	8 00	Abound	18 00

* Fitted for other sizes of Pipe, American or Foreign, but always for American Pipe, as listed, unless otherwise ordered.

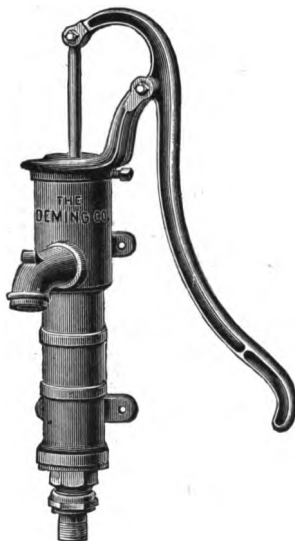
N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

REVOLVING TOP CISTERN PUMP

EASTERN STYLE

WITH BRACKETS, BORED AND POLISHED CYLINDER

Fig. 127.



The above cut represents a Cistern Pump similar to Fig. 121, except that it is provided with brackets (for bolting it to wall) instead of the base. All working parts are the same as in Fig. 121. To prevent freezing, trip the valves by raising the lever to its extreme height. The parts are made to exact gauges, so that repairs will always fit.

As listed below, this Pump is provided with a Brass Tube threaded for Iron Pipe Coupling. This tube is also used for soldering to Lead Pipe, if desired. Fitted with Brass Valve Seat.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size of Cylinder	*Fitted for Pipe	Stroke	IRON		BRASS CYLINDER	
				Cipher	Price	Cipher	Price
0	2 inch	1 inch	4 inch	Awry	3 50	Axletree	5 50
1	2 1/4 "	1 "	5 "	Axial	4 00	Azalea	6 00
2	2 1/2 "	1 1/2 "	5 "	Axially	4 50	Azarole	7 00
3	2 3/4 "	1 3/4 "	6 "	Axiom	5 00	Azimuth	8 00
4	3 "	1 1/2 "	7 "	Axiomatic	5 50	Azoic	10 00
5	3 1/4 "	1 3/4 "	7 "	Axis	6 50	Azorian	13 00
6	3 1/2 "	2 "	8 "	Axle	8 00	Azote	18 00

* Fitted for other sizes of Pipe, American or Foreign, but always for American Pipe, as listed, unless otherwise ordered.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

REVOLVING TOP CISTERN PUMP

WESTERN STYLE

WITH BOLTED BASE, BORED AND POLISHED CYLINDER

Fig. 123



This Pump is in general construction like Fig. 120, but differs from the latter in the base and coupling for pipe. The brass valve seat and pipe coupling are combined in the shape of a flanged cast-brass tube, the bottom of which is threaded for iron pipe coupling; this tube is also used for soldering to lead pipe when the latter is used.

Fig. 123 is taller than our Eastern styles of Cistern Pumps. It is substantial in every respect. Being the standard style of Cistern Pump in the Western trade, its sale is extensive. To prevent freezing, trip the valves by raising the lever to its extreme height.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16,

SIZES AND PRICES

No.	Size of Cylinder	*Fitted for Pipe	Stroke	IRON		BRASS CYLINDER	
				Cipher *	Price	Cipher	Price
0	2 1/4 inch	1 inch	6 inch	Accent	4 00	Adamant	6 00
1	2 1/4 "	1 "	6 "	Acclaim	4 50	Adder	6 50
2	2 1/2 "	1 1/4 "	6 "	Accord	5 00	Addling	7 00
3	2 1/2 "	1 1/2 "	6 "	Acquaint	5 75	Adept	8 00
4	3 "	1 1/2 "	6 "	Acquitted	6 25	Adjourn	10 00
5	3 1/2 "	1 1/2 "	6 "	Acute	6 75	Adjunct	13 00
6	3 1/2 "	2 "	6 "	Adage	8 00	Adjure	18 00

* Fitted for other sizes of Pipe, American or Foreign, but always for American, as listed, unless otherwise ordered.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

REVOLVING TOP CISTERN PUMP

EASTERN STYLE

WITH BOLTED BASE, DOUBLE ROD AND PISTON GUIDE

Fig. 122



Fig. 122 represents a style of Cistern Pump in which all working parts are constructed in the most perfect manner. The double rod and piston guide give a direct vertical motion to the plunger, so that it works perfectly true in the cylinder. In general construction this Pump is similar to Fig. 120.

This Pump is furnished with metallic fitted valves for pumping hot liquids, etc., if desired, at extra net prices given below. To prevent freezing, trip the valves by raising the lever to its extreme height. Fitted for both Lead and Iron Pipe.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	* Fitted for Pipe	Stroke	IRON		BRASS CYL.	
				Cipher	Price	Cipher	Price
1	2½ inch	1 inch	5 inch	Angular	5 00	Annoy	7 00
2	2½ "	1½ "	5 "	Animal	5 50	Anoint	8 00
3	2½ "	1½ "	6 "	Annexed	6 00	Anthem	9 00
4	3 "	1½ "	7 "	Animate	6 50	Antics	11 00
5	3½ "	1½ "	7 "	Ankle	7 50	Anthony	14 00
6	3½ "	2 "	8 "	Announce	9 00	Antler	19 00

* Fitted for other sizes of Pipe, but always as listed, unless otherwise ordered.

PRICES OF METALLIC VALVES FOR CISTERN PUMPS

No. 0.	1 25 net extra	No. 2.	1 50 net extra	No. 4.	1 75 net extra
No. 1.	1 25 " "	No. 3.	1 65 " "	No. 5.	2 00 " "
		No. 6.	2 25 net extra		

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 7

NEW STYLE BRASS CYLINDER PITCHER SPOUT PUMP

WITH PATENT RUBBER VALVE SEAT,
ADJUSTABLE LEVER AND BASE

Fig. 101

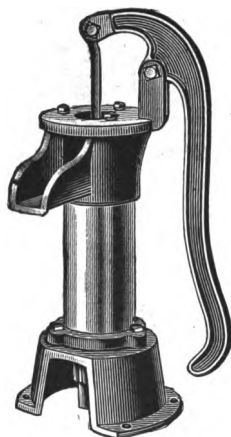


Fig. 101 represents our new style Pitcher Spout Pump with Brass Cylinder. The cylinder or barrel of this Pump is made of seamless brass tubing. The base and bearer are so constructed that the spout may be placed in any desired position. We make but one size of this Pump as below. Fitted for both Lead and Iron Pipe.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig.	Size Cyl.	Fitted for Pipe	Cylinder	Cipher	Price
101	} 3 inch	{ 1 in. Lead and Iron Pipe }	Polished Brass	Antipathy	7 00
101			Nickle Plated	Antigraph	8 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED CLOSE-SPOUT PITCHER PUMP

WITH ADJUSTABLE LEVER AND CUT-OFF BASE

Fig. 129

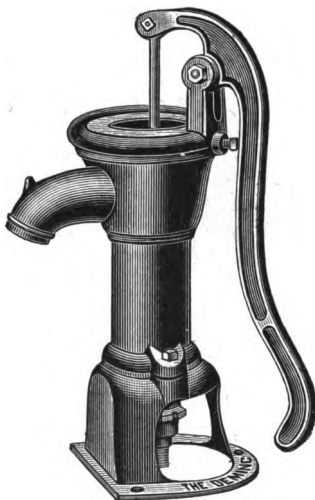


Fig. 129, Pitcher Pump with close spout, in some localities is preferred for cistern use to the other styles of Pitcher Spout Pumps. It is constructed with revolving top, so that it may be used either right or left handed. To prevent freezing, trip the valves by raising the lever to its extreme height.

These Pumps, as listed, are fitted for Iron Pipe only. Fitted for Lead Pipe when so ordered. Connection for Lead Pipe charged extra.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Fitted for Pipe	Stroke	IRON		BRASS-LINED CYL.		BRASS CYL.	
				Cipher	Price	Cipher	Price	Cipher	Price
1	2½ inch	1 inch	4 inch	Argentic	4 25	Artistic	6 50	Asleep	7 00
2	3 " "	1½ " "	4 " "	Arming	4 75	Ashamed	7 25	Aspect	10 00
3	3½ " "	1½ " "	4 " "	Armory	5 25	Ashore	8 00	Assail	12 00
4	4 " "	1½ " "	4½ " "	Arsenal	6 25	Aside	9 00	Assault	14 00

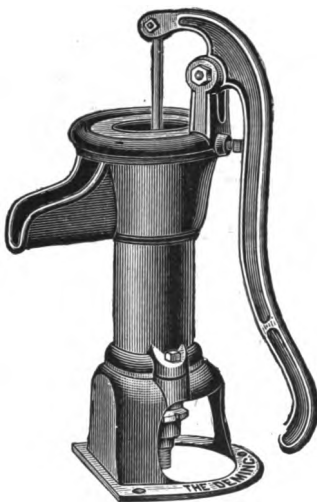
Furnished, when ordered, with Patent Rubber Valve Seat at extra cost—see page 93.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

IMPROVED CLOSE-TOP PITCHER SPOUT PUMP

WITH ADJUSTABLE LEVER AND CUT-OFF BASE

Fig. 125



The above illustration represents our Improved Pitcher Spout Pump with Close Top, a style that is in universal favor for house use, where a cheap and substantial Cistern Pump is required. The Cylinder is bored perfectly true and highly polished. The Suction Pipe attachment is arranged by a projecting hub at the bottom of the base, on which is screwed a coupling nut, threaded for gas pipe. All parts are made to exact gauges, so that repairs will always fit. To prevent freezing, trip valves by raising lever to its extreme height.

These Pumps, as listed, are fitted for Iron Pipe only. Fitted for Lead Pipe when so ordered. Connection for Lead Pipe charged extra.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Fitted for Pipe	Stroke	IRON		BRASS-LINED CYL.		BRASS CYL.	
				Cipher	Price	Cipher	Price	Cipher	Price
1	2½ inch	1 inch	4 inch	Assay	4 25	Astound	6 50	Attract	7 00
2	3 " "	1½ " "	4 " "	Assayed	4 75	Astray	7 25	Audit	10 00
3	3½ " "	1½ " "	4 " "	Assent	5 25	Asunder	8 00	Auditor	12 00
4	4 " "	1½ " "	4½ " "	Assign	6 25	Atoning	9 00	Augment	14 00
5	4½ " "	2 " "	5 " "	Assuage	9 50	Attain	12 50	.....	.....
6	5 " "	2½ " "	5½ " "	Astounding	17 00	Attained	22 00	.....	.....

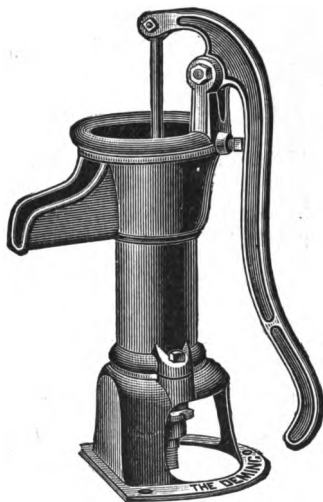
Furnished, when ordered, with Patent Rubber Valve Seat at extra cost—see page 93.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED OPEN-TOP PITCHER SPOUT PUMP

WITH ADJUSTABLE LEVER AND CUT-OFF BASE

Fig. 126



This Pump is exactly the same as Fig. 125, except in the construction of the top or bearer, which in Fig. 126 is open, so that the water flows up and out the spout in full view. If desired, the rod may be uncoupled and the plunger drawn out without removing the bearer and lever.

To prevent freezing, raise the lever to its extreme height. All parts made to gauges, so that repairs will always fit.

These Pumps, as listed, are fitted for Iron Pipe only. Fitted for Lead Pipe when so ordered. Connection for Lead Pipe charged extra.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Fitted For Pipe	Stroke	IRON		BRASS-LINED CYL.		BRASS CYL.	
				Cipher	Price	Cipher	Price	Cipher	Price
1	2½ in.	1 in.	4 in.	Author	4 25	Avenging	6 50	Award	7 00
2	3 "	1¼ "	4 "	Avail	4 75	Avowed	7 25	Awarded	10 00
3	3½ "	1½ "	4 "	Avaunt	5 25	Avowal	8 00	Awful	12 00
4	4 "	1¾ "	4½ "	Avenge	6 25	Awake	9 00	Awkward	14 00
5	4½ "	2 "	5 "	Avenged	9 50	Awaken	12 50	.....	.....
6	5 "	2½ "	5½ "	Avenue	17 00	Awakened	22 00	.....	.....

Furnished, when ordered, with Patent Rubber Valve Seat at extra cost—see page 93.

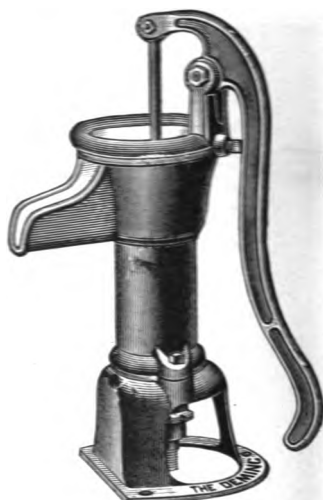
In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 7

IMPROVED PORCELAIN-LINED PITCHER PUMPS

Fig. 132—With Close Top



Fig. 133—With Open Top



The above cuts represent our Pitcher Spout Pumps with Porcelain-lined Cylinders, by which corrosion is prevented. The water is always pure and free from discoloration. To prevent freezing, trip the valves by raising the lever to its extreme height. All parts are made so that repairs will always fit.

These Pumps, as listed, are fitted for Iron Pipe only. Fitted for Lead Pipe when so ordered. Connection for Lead Pipe charged extra.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Fitted for Pipe	Stroke	Fig. 132		Fig. 133	
				Cipher	Price	Cipher	Price
1	2½ in.	1 in.	4 in.	Awfully	6 50	Awlwort	6 50
2	3 "	1¼ "	4 "	Aware	7 25	Avoid	7 25
3	3½ "	1½ "	4 "	Away	8 00	Avoided	8 00
4	4 "	1½ "	4½ "	Awhile	9 00	Avoiding	9 00
5	4½ "	2 "	5 "	Awned	12 50	Averse	12 50

Furnished, when ordered, with Patent Rubber Valve Seat at extra cost—see page 93.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

ANTI-FREEZING CISTERN PUMPS

Fig. 117

WITH WROUGHT-IRON SET-LENGTH

Fig. 117, represented by the cut to the left, is the same as Fig. 120 Cistern Pump, with Plunger and valves omitted, and a set-length pipe connecting to a Cylinder or working barrel below. This Pump is suitable for in-door or out-door use where a short Pump Standard is desired.

Fig. 130 is the same as Fig. 126 Pitcher Spout Pump, with wrought-iron set-length and independent Cylinder or working barrel.

A drip hole above the Cylinder prevents freezing.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

Fig. 130



SIZES AND PRICES

No.	Size Cyl.	Fitted for Pipe	Stroke	Fig. 117		Fig. 130	
				Cipher	Price	Cipher	Price
1	2¼ in.	1 in	6 in.	Babble	6 00	Bald	6 25
2	2¼ "	1¼ "	6 "	Babel	6 50	Balder	6 75
3	2¼ "	1½ "	6 "	Backing	7 00	Baldish	7 25
4	3 "	1½ "	6 "	Baffled	7 50	Baltic	7 75
5	3¼ "	1½ "	6 "	Baffling	8 00	Banding	8 25
6	3½ "	1½ "	6 "	Baking	8 75	Bandit	9 00
8	4 "	2 "	6 "	Balcony	9 50	Bantam	9 75

Pumps Illustrated and Listed above have Patent Rubber Valve Seat—See page 93.

IMPROVED ANTI-FREEZING WELL PUMPS

WITH WROUGHT-IRON SET-LENGTH
AND BOLTED BASE

Fig. 202—Tight-Top

Fig. 200—Open-Top



The Pumps illustrated on this page have been long and favorably known in most parts of the country. They are adapted to wells not over twenty-eight feet in depth, and they are rendered anti-freezing by a drip-hole in the set-length pipe directly above the cylinder, about three feet below base of Pump.

When the cylinder is lowered to within fifteen or twenty feet of the water, these Pumps will do good service in wells fifty feet deep.

The Tight-Top Pump, Fig. 202, is preferred in some cases on account of the direct vertical motion of the piston-rod, and because no stones or dirt can be thrown into it, which might prevent its working.

These Pumps are equally adapted for open and driven wells. Repairs will always fit. Length of stroke 6 inches.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Fitted for	Fig. 200			Fig. 202		
			Cipher	Pr.	*Stan'd	Cipher	Pr.	*Stan'd
1	2 1/4 in.	1 in.	Bashful	7 00	4 00	Beadle	7 75	4 75
2	2 1/2 "	1 1/4 "	Basin	7 50	4 00	Beamed	8 25	4 75
3	2 3/4 "	1 1/2 "	Basting	8 00	4 50	Beaming	8 75	5 25
4	3 "	1 3/4 "	Batter	8 50	5 00	Bearded	9 25	5 75
5	3 1/4 "	1 3/4 "	Batting	9 00	5 50	Beastly	9 75	6 25

*The "Standard" means complete parts of Pump above, and including the base. The "Cipher" applies only to the complete Pump.

Pumps Illustrated and Listed above have Patent Rubber Valve Seat—See page 93.

SPECIAL ANTI-FREEZING WELL PUMPS

Fig. 198—Open Top



WITH WROUGHT-IRON SET-LENGTH
CONNECTED UNDER SPOUT

Figs. 198 and 199 are the lightest Set-length Well Pumps we make. In designing them care has been taken to so distribute the metal that strength and durability are retained.

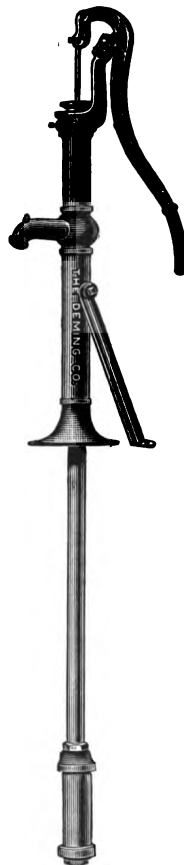
A drip hole in set-length pipe allows water to flow back and prevents freezing.

The difference between Figs. 198 and 199 is that the latter has a tight top with links to the lever which gives it a direct vertical motion, and prevents obstructions being thrown into the stock.

Length of stroke, six inches.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

Fig. 199—Tight Top



SIZES AND PRICES

No.	Size Cyl.	Fitted for Pipe	Fig. 198		Fig. 199	
			Cipher	Price	Cipher	Price
2	2½ inch	1¼ inch	Brazenly	7 25	Breaded	8 00
3	2¾ " "	1½ " "	Brazier	7 50	Breadth	8 25
4	3 " "	1¾ " "	Breach	7 75	Breaker	8 50

Fig. 198, Standard complete, \$4.75. Fig. 199, Standard complete, \$5.50.

Pumps Illustrated and Listed above have Patent Rubber Valve Seat—See page 93.

IMPROVED ANTI-FREEZING WELL PUMPS

WITH OPEN TOP
SET-LENGTH PIPE CONNECTED UNDER SPOUT

Fig. 210—Light Standard



Fig. 211—Medium Standard



Fig. 212—Heavy Standard



Description and lists of these Pumps will be found on the opposite page.

Pumps Illustrated and Listed above have Patent Rubber Valve Seat—See page 93.

IMPROVED ANTI-FREEZING WELL PUMPS.

SET-LENGTH PIPE CONNECTED UNDER SPOUT

Figs. 210, 211 and 212

The Pumps illustrated on the preceding page are similar in design, the only difference being in the sizes and weights of the standards. As listed these Pumps may be used in wells of about 28 feet in depth; but by lowering the cylinder to within 15 feet or into the water, the medium and heavy Pumps, **Figs. 211 and 212**, are adapted for wells 50 to 60 feet deep. The bases of these Pumps are cast solid on the stock, and set-length pipes are connected under the spout, thus causing delivery of the water after a few strokes of the handle, and preventing effect from frost by the air space between the pipe and stock of Pump. These Pumps may be used in both open and driven wells. Always furnished with raised sand valve seat. Length of stroke six inches.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES—WITH IRON CYLINDERS

SIZES AND FITTINGS			Fig. 210		Fig. 211		Fig. 212	
No.	Size Cyl.	Fitted for Pipe	Hgt., 44in. Base to Top		Hgt., 45in. Base to Top		Hgt., 47in. Base to Top	
			Cipher	Price	Cipher	Price	Cipher	Price
1	2½ in.	1 in.	Beaver	7 75	.....	.....	.....	.....
2	2½ "	1½ "	Bedded	8 00	Begrudge	8 50	.....	.....
3	2½ "	1½ "	Bedding	8 25	Behest	8 75	Besiege	9 25
4	3 "	1½ "	Beetle	8 50	Bemoan	9 00	Beseech	9 50
5	3½ "	1½ "	Befall	8 75	Renumb	9 25	Besought	9 75
6	3½ "	1½ "	.....	.....	Bequest	9 75	Betide	10 25
8	4 "	2 "	.....	.....	.....	.....	Betoken	11 50

SIZES AND PRICES—WITH BRASS-LINED CYLINDERS

SIZES AND FITTINGS			Fig. 210		Fig. 211		Fig. 212	
No.	Size Cyl.	Fitted for Pipe	Hgt., 44in. Base to Top		Hgt., 45in. Base to Top		Hgt., 47in. Base to Top	
			Cipher	Price	Cipher	Price	Cipher	Price
1	2½ in.	1 in.	Betroth	10 00	.....	.....	.....	.....
2	2½ "	1½ "	Betrothal	10 25	Bigotry	10 75	.....	.....
3	2½ "	1½ "	Bewitch	10 50	Billous	11 00	Bismuth	11 50
4	3 "	1½ "	Bewitched	11 00	Billiards	11 50	Bison	12 00
5	3½ "	1½ "	Bigness	11 50	Biped	12 00	Blacked	12 50
6	3½ "	1½ "	.....	.....	Birthday	12 75	Blacking	13 25
8	4 "	2 "	.....	.....	.....	.....	Blame	15 00

Pumps Illustrated and Listed above have Patent Rubber Valve Seat—See page 93.

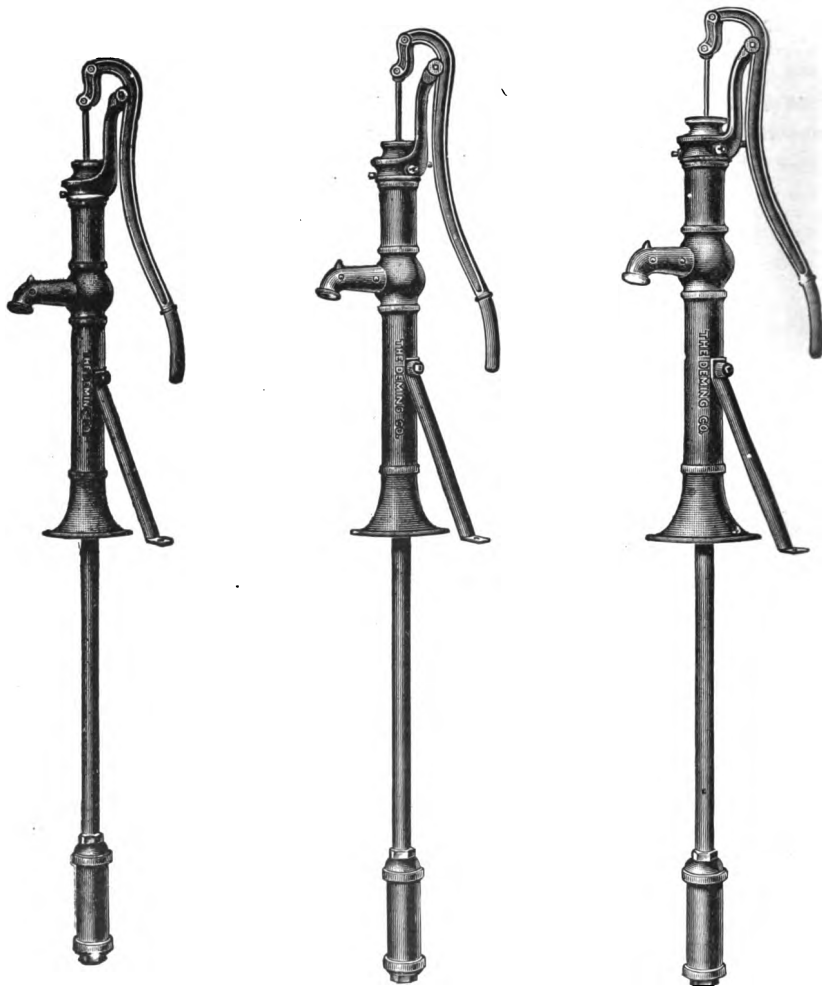
IMPROVED ANTI-FREEZING WELL PUMPS

WITH TIGHT TOP
SET-LENGTH PIPE CONNECTED UNDER SPOUT

Fig. 213—Light Standard

Fig. 214—Medium Standard

Fig. 215—Heavy Standard



Description and lists of these Pumps will be found on the opposite page.

Pumps Illustrated and Listed above have Patent Rubber Valve Seat—See page 93.

IMPROVED ANTI-FREEZING WELL PUMPS

SET-LENGTH PIPE CONNECTED UNDER SPOUT

Figs. 213, 214 and 215

The Pumps, Figs. 213, 214 and 215, represented by cuts on preceding page, are similar to Figs. 210, 211 and 212, respectively; the only difference being that the former are constructed with tight tops, which give a direct vertical motion to the piston-rod and prevent foreign substances from getting into the working parts through the top of Pump, and are often preferred to the open-top style of Pump for that reason. The bases are cast solid on the stock with the set-length pipe connecting under the spout. These Pumps are adapted to open or driven wells. Length of stroke, six inches.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES—WITH IRON CYLINDERS

SIZES AND FITTINGS			Fig. 213		Fig. 214		Fig. 215	
No.	Size Cyl.	Fitted For Pipe	Hgt., 47 in. Base to Top		Hgt., 48 in. Base to Top		Hgt., 50 in. Base to Top	
			Cipher	Price	Cipher	Price	Cipher	Price
1	2½ in.	1 in.	Blamed	8 50	Blended	9 25	.....	.....
2	2½ "	1½ "	Blameless	8 75	Blender	9 50	Bloated	10 00
3	2½ "	1½ "	Blaming	9 00	Blighted	9 75	Bloomed	10 25
4	3 "	1½ "	Blarney	9 25	Blighting	10 00	Bloomer	10 50
5	3½ "	1½ "	Bleeding	9 50	Blistered	10 50	Blooming	11 00
6	3½ "	1½ "	.....	.....	.....	.....	Blotched	12 25
8	4 "	2 "	.....	.....	.....	.....	.....	.....

SIZES AND PRICES—WITH BRASS-LINED CYLINDERS

SIZES AND FITTINGS			Fig. 213		Fig. 214		Fig. 215	
No.	Size Cyl.	Fitted For Pipe	Hgt., 47 in. Base to Top		Hgt., 48 in. Base to Top		Hgt., 50 in. Base to Top	
			Cipher	Price	Cipher	Price	Cipher	Price
1	2½ in.	1 in.	Blouse	10 75	Bluffed	11 50	.....	.....
2	2½ "	1½ "	Blowing	11 00	Bluffer	11 75	Blunted	12 25
3	2½ "	1½ "	Blockade	11 25	Bluffing	12 25	Blunting	12 75
4	3 "	1½ "	Blocking	11 75	Blunder	12 75	Bluntly	13 25
5	3½ "	1½ "	Bluebird	12 25	Blundering	13 50	Bluster	14 00
6	3½ "	1½ "	.....	.....	.....	.....	Blustering	15 75
8	4 "	2 "	.....	.....	.....	.....	.....	.....

Pumps Illustrated and Listed above have Patent Rubber Valve Seat—See page 93.

SPECIAL ANTI-FREEZING WIND MILL PUMPS

SET-LENGTH PIPE CONNECTED UNDER SPOUT

Fig. 420—Light Standard



Fig. 421—Medium Standard



Fig. 422—Heavy Standard



Description and lists of these Pumps will be found on the opposite page.

Pumps Illustrated and Listed above have Patent Rubber Valve Seat—See page 93.

SPECIAL ANTI-FREEZING WIND MILL PUMPS

SET-LENGTH PIPE CONNECTED UNDER SPOUT

Figs. 420, 421 and 423

These Pumps are similar to Figs. 213, 214 and 215, respectively, both in dimensions and adaptability. The addition of the Wind Mill top gives a vertical motion to the piston-rod, preventing an uneven action of the plunger in the cylinder, and adapts them for Wind Mill use.

The flat rod of these Pumps fits the top tightly; and the same may be said of them in this respect as is said of Figs. 213, 214 and 215, *i. e.*, dirt and stones or other foreign substances cannot be thrown into the Pump to prevent its working.

These Pumps are made anti-freezing by a drip hole in set-length pipe just above the cylinder. Repairs will always fit. Length of stroke, six inches.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES—WITH IRON CYLINDERS

SIZES AND FITTINGS			Fig. 420		Fig. 421		Fig. 423	
No.	Size Cyl.	Fitted for Pipe	Height, 44 in. Base to Top Guide		Height, 45 in. Base to Top Guide		Height, 47 in. Base to Top Guide	
			Cipher	Price	Cipher	Price	Cipher	Price
1	2½ inch	1 inch	Boarded	8 75				
2	2½ "	1½ "	Boarding	9 00	Boatswain	9 50		
3	2¾ "	1½ "	Boasted	9 25	Bobbin	9 75	Bobtail	10 25
4	3 "	1½ "	Boastful	9 50	Bobbinet	10 00	Bobtailed	10 50
5	3¼ "	1½ "	Boating	9 75	Bobbing	10 25	Bobwhite	10 75
6	3½ "	1½ "			Bobolink	10 75	Bocking	11 25
8	4 "	2 "					Bodeful	12 50

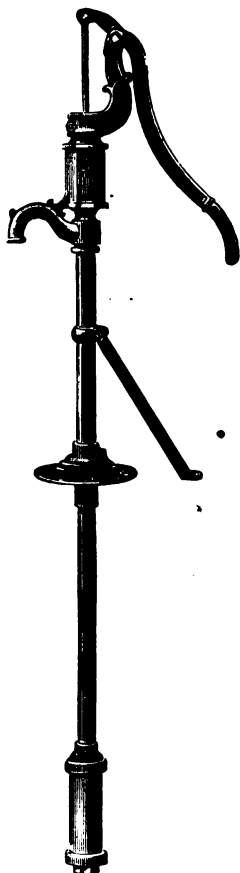
SIZES AND PRICES—WITH BRASS-LINED CYLINDERS

SIZES AND FITTINGS			Fig. 420		Fig. 421		Fig. 423	
No.	Size Cyl.	Fitted for Pipe	Height, 44 in. Base to Top Guide		Height, 45 in. Base to Top Guide		Height, 47 in. Base to Top Guide	
			Cipher	Price	Cipher	Price	Cipher	Price
1	2½ inch	1 inch	Bodice	11 00				
2	2½ "	1½ "	Bodiless	11 25	Boggish	11 75		
3	2¾ "	1½ "	Bodily	11 50	Bogus	12 00	Bollard	12 50
4	3 "	1½ "	Bodkin	12 00	Boiling	12 50	Bolster	13 00
5	3¼ "	1½ "	Boggle	12 50	Bolden	13 00	Bolter	13 50
6	3½ "	1½ "			Boldly	13 75	Bolting	14 25
8	4 "	2 "					Bombard	16 00

Pumps Illustrated and Listed above have Patent Rubber Valve Seat—See page 93.

IMPROVED ADJUSTABLE STANDARD LIFT PUMPS

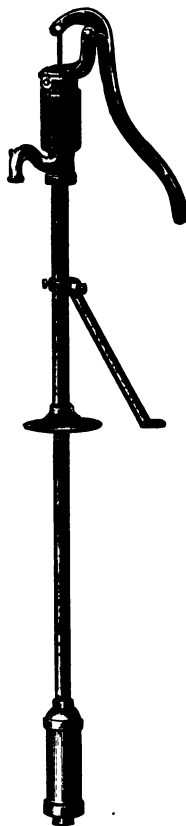
Fig. 181



"BANNER"

ANTI-FREEZING

Fig. 182



"MASCOT"

Fig. 181, The "Banner," and Fig. 182, The "Mascot" represent set length Lift Pumps of recent design. They are attractive in appearance and extremely convenient in construction. That part of the standard below the spout is made of iron pipe, and may be raised or lowered to suit the ideas of the user. The Fulcrum, Brace and Base are all adjustable to any position required. As shown they are adapted to wells 28 feet deep or less, but by lengthening the pipe below the base, and lowering the cylinder into the water, they are equally serviceable in deep wells.

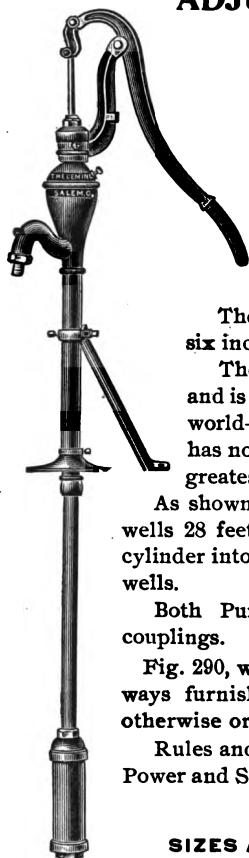
Stroke, six inches.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Figure	Name	Size Cyl.	Fitted for Pipe	With Iron Cyl.		With Brass Lined Cyl.		With Brass Cylinder	
				Cipher	Price	Cipher	Price	Cipher	Price
181	Banner	3 inch	1 1/4 in.	Baboon	9 00	Bacon	11 50	Baggage	13 00
182	Mascot	3 inch	1 1/4 in.	Bachelor	7 50	Badger	10 00	Balky	11 50

Pumps Illustrated and Listed above have Patent Rubber Valve Seat—See page 93.

Fig. 192—"LEADER"

IMPROVED ADJUSTABLE STANDARD FORCE PUMPS

ANTI-FREEZING

The "Leader" and "Premium", Figs. 192 and 290, are our latest design. They are both arranged with adjustable Fulcrums, Braces and Bases. The standard may be lengthened or shortened when desired.

The "Leader" Pump is made with six inch stroke.

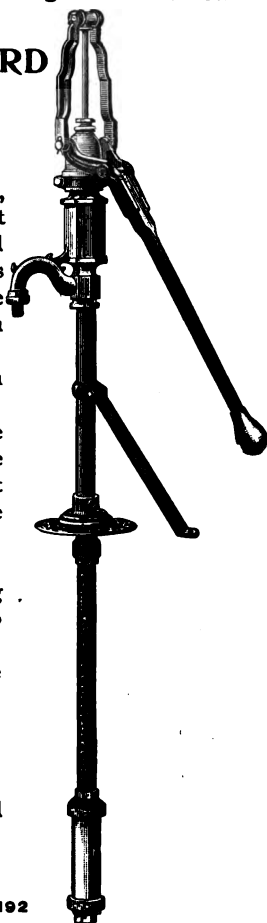
The "Premium" has ten inch stroke and is the easiest working Pump in the world—as a House and Yard Pump it has no equal. Dealers declare it is the greatest seller on the market.

As shown, these Pumps are suitable for wells 28 feet deep or less, and by lowering cylinder into the water, are adapted to deep wells.

Both Pumps are furnished with hose couplings.

Fig. 290, with Brass Tube Cylinder, is always furnished with Outside Caps, unless otherwise ordered.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

Fig. 290—"PREMIUM"**SIZES AND PRICES—"LEADER" FIG. 192**

No.	Size Cyl.	Fitted for Pipe	Stroke	With Iron Cylinder		With Brass Cylinder	
				Cipher	Price	Cipher	Price
4	3 inch	1½ inch	6 inch	Brett	11 50	Bribery	15 50

SIZES AND PRICES—"PREMIUM" FIG. 290

No.	Size Cyl.	Fitted for Pipe	Stroke	WITH IRON CYL.		BRASS LINED CYL.		WITH BRASS CYL.	
				Cipher	Price	Cipher	Price	Cipher	Price
2	2½x14 in.	1½ in	10 in.	Balloon &	14 00	Baggy	16 50	Bandbox	18 00
4	3 x14 "	1½ "	10 "	Balsam	15 00	Bagnet.	18 00	Banana	19 50
6	3½x14 "	1½ "	10 "	Baluster	17 00	Bailed	20 50	Banking	22 00

Pumps Illustrated and Listed above have Patent Rubber Valve Seat—See page 93.

ANTI-FREEZING WELL FORCE PUMPS

WITH AIR CHAMBER AND WROUGHT-IRON
SET-LENGTH

Fig. 219

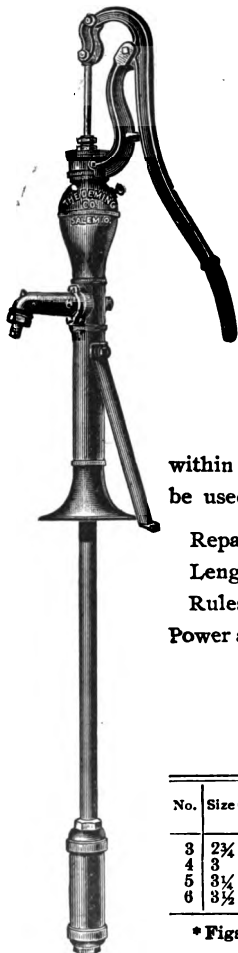
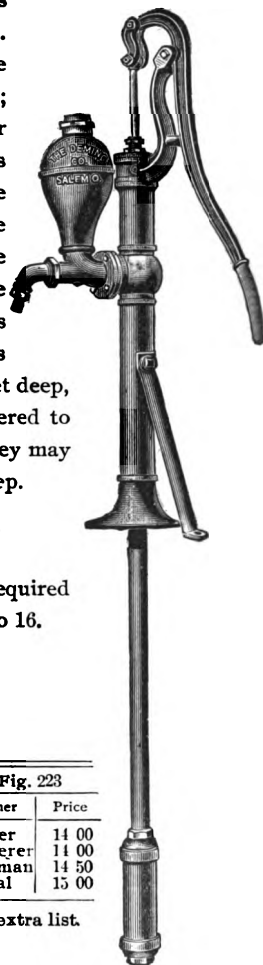


Fig. 223



The Pumps illustrated on this page are similar in most respects. They differ principally in the construction of the air chamber; Fig. 223 having the air chamber on the spout, while Fig. 219 is made with air chamber in the standard. These Pumps are efficient as garden, yard, stable and fire Pumps. They are furnished with hose coupling, as shown. As listed, these Pumps are adapted to wells about 28 feet deep, but when the cylinder is lowered to within 15 feet, or into the water, they may be used in wells from 60 to 70 feet deep.

Repairs for our Pumps will always fit.

Length of stroke, six inches.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Fitted for Pipe	*Fig. 219		*Fig. 223	
			Cipher	Price	Cipher	Price
3	2 3/4 in.	1 1/4 in.	Boorish	12 50	Border	14 00
4	3 "	1 1/2 "	Booser	12 50	Borderer	14 00
5	3 3/4 "	1 3/4 "	Boozy	13 00	Bordman	14 50
6	3 1/2 "	1 1/2 "	Booting	13 50	Boreal	15 00

* Figs. 219 and 223, with Cock Spout, \$2.50, extra list.

Pumps Illustrated and Listed above have Patent Rubber Valve Seat—See page 93.

ANTI-FREEZING WELL FORCE PUMPS

Fig. 220—Bolted Base

Fig. 221—Screwed Base

WITH WROUGHT IRON SET-LENGTHS

Figs. 220 and 221 are similar to Figs. 219 and 223 respectively, the principal difference being that Fig. 220 has a bolted base, and Fig. 221 has the base screwed to the standard. When the pipe and cylinder need to be removed from well this feature is of value, as all the weight above the base is readily removed. A drip-hole is provided to prevent freezing.

Each pump has a hose coupling screwed to the spout.

These pumps as listed are adapted to wells 28 feet deep, but by placing the cylinder in or within 20 feet of the water they may be used for wells 75 feet deep. The length of stroke is six inches.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size of Cylinder	Fitted for Pipe	Fig. 220.		*Fig. 221.	
			Cipher	Price	Cipher	Price
3	2 3/4 in.	1 1/4 in.	Booty	13 00	Borough	15 00
4	3 " "	1 1/2 " "	Bopeep	13 00	Borrowed	15 00
5	3 1/4 " "	1 3/4 " "	Boracic	13 50	Bosom	15 50
6	3 1/2 " "	1 7/8 " "	Borax	14 00	Bossage	16 00

* Fig. 221 with cock on spout, \$2.50 extra list.

Fig. 220, Standard, complete, \$10.00; Fig. 221, Standard, complete, \$11.00.

Pumps Illustrated and Listed above have Patent Rubber Valve Seat—See page 93

ANTI-FREEZING WELL FORCE PUMPS

WITH WIND MILL TOP

Fig. 422

Fig. 442

WROUGHT-IRON SET-LENGTH CONNECTED
UNDER SPOUT



The Force Pumps illustrated on this page are the same as Fig. 440 and Fig. 444, with the addition of a set-length pipe and cylinder. The wind-mill top gives a direct vertical motion to the plunger, thus wearing the cylinder evenly and smoothly. They are provided with a brass hose coupling and back outlet, also with brass stuffing-box and brass thumb-screw in the air chamber. When used as Lift Pumps, the brass thumb-screw should be loosened.



Fig. 442 having cock spout and back outlet, is very desirable as a Tank Pump, as the water can be either discharged at the spout or forced into a tank.

Length of stroke, six inches.

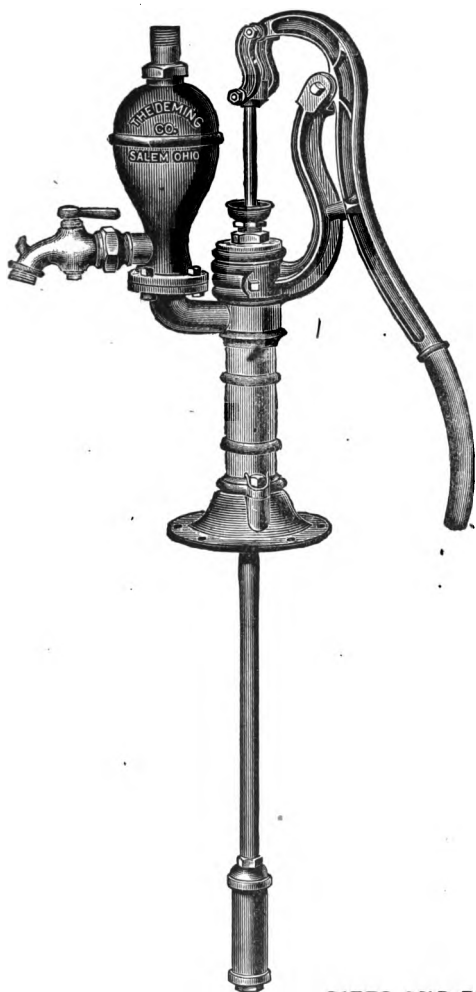
Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Fitted for Pipe	Fig. 422		Fig. 442	
			Cipher	Price	Cipher	Price
2	2½ in.	1½ in.	Botanic	13 00	Bothnian	15 50
3	2¾ " "	1¾ " "	Botanist	13 00	Bottled	15 50
4	3 " "	1¾ " "	Botanize	13 50	Bottling	16 00
5	3¼ " "	1¾ " "	Botargo	14 00	Bottom	16 50
6	3½ " "	1¾ " "	Bothnic	14 50	Bouillon	17 00

Pumps Illustrated and Listed above have Patent Rubber Valve Seat—See page 93.

ANTI-FREEZING HAND FORCE PUMP



**WITH SET-LENGTH PIPE AND
INDEPENDENT CYLINDER**

**UPWARD DISCHARGE AND
COCK SPOUT**

Fig. 512

This Pump is constructed from our Hand Force Pump, Fig. 508, the plunger and valves being omitted and the piston-rod connected to that of an independent Cylinder, attached to a set-length pipe three feet below the base. The Pump is thus rendered anti-freezing by drip-hole above the Cylinder, and may be placed outdoors wherever an ordinary Set-length Force Pump is adaptable.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Suct'n Fitted for Pipe	Disc'g Fitted for Pipe	Stroke	Cipher	Price
2	2½ in.	1¼ in.	1¼ in.	6 in.	Emphasis	16 00
3	3 " "	1½ " "	1½ " "	6 " "	Emphatic	18 00
4	3½ " "	1½ " "	1½ " "	6 " "	Emperor	24 00

Fig. 512, with 4 inch Cylinder, made to order.

Pumps Illustrated and Listed above have Patent Rubber Valve Seat—See page

THE "PEERLESS"

DOUBLE-ACTING

SHALLOW WELL FORCE PUMPS

WITH STRAINER AND HOSE ATTACHMENT

These engravings represent our Shallow Well Pumps, Fig. 280 for hand use, and Fig. 450 for either hand or windmill.

One great convenience to dealers in handling these Pumps is that with the Deep Well Attachments the Shallow Well Pumps, Figs. 280 and 450, can readily be made into the Deep Well Pumps, Figs. 281 and 451. This is accomplished by simply detaching the lower cylinder and connecting to it the attachment B, and to the Lower Pump casting the attachment A. This feature of adjustability is an advantage that gives the dealer four styles of Pumps by carrying two styles; together with the attachments, which list at \$1.00 per pair.

The differential cylinders and the long pipe air chamber cause the discharge of a continuous stream from the spout. No spurting and splashing at the spout.

The No. 4 "Peerless" Pumps, Figs. 280 and 450, are the most popular size, as they will go in $5\frac{1}{2}$ inch well casing. This applies also to Figs. 281 and 451, No. 4.

Attachments A and B to make "Peerless" Shallow Well Pumps into Deep Well Pumps, \$1.00; each attachment, 50 cents.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

Detail of deep well attachments A and B.

SIZES AND PRICES

No.	Diameter Lower Cyl.	Fitted for Pipe	Stroke	Diameter of Drilled Well will go in	Fig. 280 Hand Top		Fig. 450 Wind Mill Top	
					Cipher	Price	Cipher	Price
2	2½ inch	1½ inch	3 inch	5 inch	Bankrupt	14 00	Barley	15 00
4	3 "	1¾ "	5 "	5½ "	Barbarian	14 00	Barnacle	15 00
6	3½ "	1½ "	6 "	6½ "	Barbecue	16 00	Barometer	17 00

Figs. 280 and 450 are adapted for wells 25 feet deep.

Illustrated and Listed above have Patent Rubber Valve Seat—See page 93.

Fig. 281—Hand Top**Fig. 451** Windmill Top**THE "PEERLESS"****DOUBLE-ACTING****DEEP WELL FORCE
PUMPS****WITH STRAINER AND HOSE
ATTACHMENT**

The only difference between the "Peerless" Shallow Well Pumps and the "Peerless" Deep Well Pumps is that the latter have the two attachments. Full explanation concerning the manner of changing the shallow well to deep well Pumps is given on preceding page. The shallow well Pumps can be ordered, and as occasion requires deep well Pumps may be made by ordering simply the attachments A and B. If you know what is wanted for any special order, however, it is better to always order the Pump complete as listed.

Figs. 281 and 451 may be used in wells over 25 feet in depth, and the Pump will always be primed if the lower cylinder is set in the water.

The **No. 4 Pumps** are adapted for $5\frac{1}{4}$ inch cased wells. Generally speaking, it may be said that the $2\frac{1}{4}$ inch Pumps (No. 2) should be used in wells 100 feet deep, the 3 inch Pumps (No. 4) in wells 60 feet deep, and the $3\frac{1}{2}$ inch Pumps (No. 6) in wells 40 feet deep; or less than depth mentioned.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

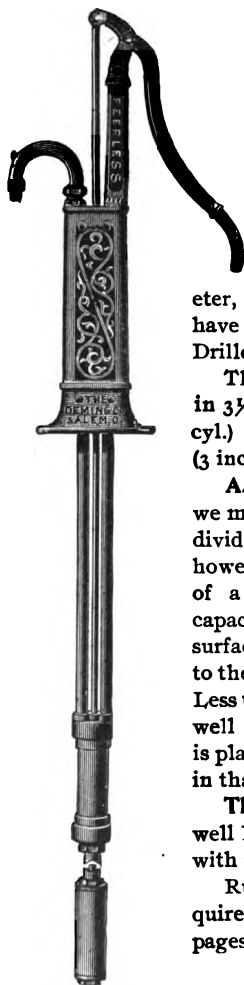
No.	Diameter Lower Cylinder	Fitted for Pipe	Stroke	Diam. of Drill'd Well will go in	Fig. 281 Hand Top		Fig. 451 Wind Mill Top	
					Cipher	Price	Cipher	Price
2	2½ in.	1½ in.	6 in.	5 in.	Barricade	15 00	Bedlam	16 00
4	3 " "	1¼ " "	6 " "	5½ " "	Bastinado	15 00	Bedouin	16 00
6	3½ " "	1½ " "	6 " "	6½ " "	Bayonet	17 00	Beggar	18 00

Figs. 281 and 451 are adapted for wells from 25 to 125 feet deep

Pumps Illustrated and Listed above have

Rubber Valve Seat—See page 93.

Fig. 282—Hand Top



THE "PEERLESS" Fig. 452 Windmill Top

DOUBLE-ACTING

DRILL WELL FORCE PUMPS

WITH STRAINER AND HOSE ATTACHMENT

There is a demand in some sections of the country for Double-Acting Pumps that will go in drilled wells of small diameter, and to meet this requirement we have constructed our "Peerless" Drilled Well Pumps, Figs. 282 and 452.

The No. 2 Pump ($2\frac{1}{2}$ inch cyl.) goes in $3\frac{1}{2}$ inch; the "Special" ($2\frac{1}{2}$ inch cyl.) goes in 3 inch; and the No. 4 (3 inch cyl.) goes in 4 in. drilled well.

As drilled wells are usually deep, we make Figs. 282 and 452 only with divided cylinders. They may be used, however, in shallow wells. The depth of a well, as to the Pump's lifting capacity, is usually considered from surface of ground or level of platform to the surface of the water in the well. Less trouble is experienced with deep well Pumps when the lower cylinder is placed in the water, since the pump, in that case, is always primed.

The lower cylinders of the drilled well Pumps are made of brass tubing with inside attachments.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.



SIZES AND PRICES

No.	Diam. Lower Cyl.	Fitted for Pipe	Stroke	Will go in Drilled Wells	Fig. 282 Hand Top		Fig. 452 Windmill Top	
					Cipher	Price	Cipher	Price
2	$2\frac{1}{2}$ in.	$1\frac{1}{4}$ in.	6 in.	$3\frac{1}{2}$ in.	Belay	16 00	Belaying	17 00
4	3 "	$1\frac{1}{4}$ "	6 "	4 "	Beholden	16 00	Bellows	17 00
Special	$2\frac{1}{2}$ in.	$1\frac{1}{4}$ in.	6 in.	3 in.	Behavior	16 50	Belfry	17 50

Pumps Illustrated and Listed above have Patent Rubber Valve Seat—See page 93.

Fig. 283—Hand Top

THE "PEERLESS"

Fig. 453

Windmill Top

DOUBLE-ACTING

THREE-WAY FORCE
PUMPSWITH STRAINER AND HOSE
ATTACHMENT

Figs. 283 and 453

The convenience of the Three-Way Pump is proverbial among Pump and wind-mill users and dealers. With this style of "Peerless" Pump the water may be discharged through the spout or through the under-ground discharge pipe, by simply turning a hand-wheel at the top of the spout.

The lower cylinders of these Pumps are the same style as used with Figs. 282 and 452, so that they can be placed in drilled wells of small diameter. It should be remembered, however, that well casing must come only to the upper cylinder attachment, 4 feet 3 inches below base of Pump. A pit of that depth should be dug so as to accommodate the underground discharge pipe. Either the Hand Pump, Fig. 283, or Windmill Pump, Fig. 453, will be found very convenient for hand use, in discharging water into a tank located either at the house or barn. If, however, the Pump is for both hand and windmill use, or for windmill only, our Fig. 453 Pump should be used.

These Pumps are made with divided cylinders, the lower cylinder being of brass tubing with inside attachments. Being made in this way they can be used in drilled or open wells of any ordinary depth.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Diameter Lower Cyl.	Fitted for Pipe	Stroke	Under- ground Discharge	Diameter Well Lower Cyl. goes in	Fig. 283 Hand Top		Fig. 453 Windmill Top	
						Cipher	Price	Cipher	Price
2	2½ in.	1¼ in.	6 in.	1 in.	3 in.	Belvedere	19 00	Bengal	20 00
4	3 "	1½ "	6 "	1 "	3½ "	Benefactor	19 00	B. thel	20 00

Figs. 283 and 453 are adapted for wells up to 125 feet deep.

Pumps Illustrated and Listed above

ber Valve Seat—See page 9

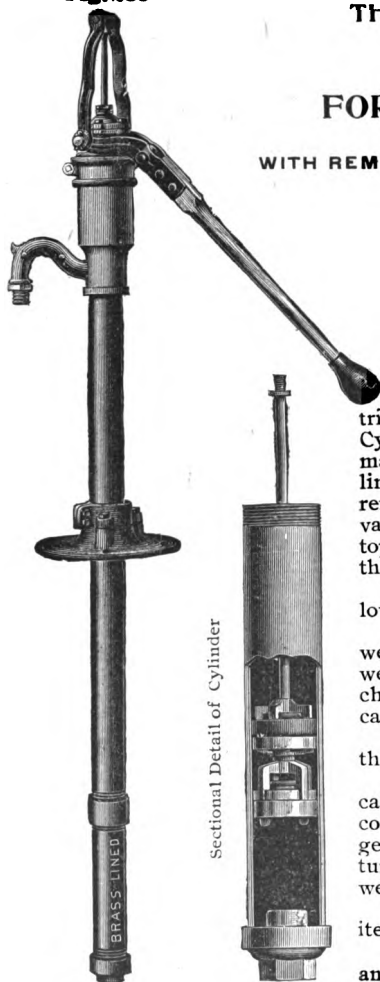
Fig. 285

THE FARMER'S FAVORITE

LONG STROKE

FORCE AND LIFT PUMP

WITH REMOVABLE VALVES. FOR SHALLOW AND DEEP WELLS



The Pump represented by the illustration is one of the most convenient general purpose pumps ever produced. It was designed to replace the old wooden Town Pump and the Common Iron Pump, and will be appreciated by every one who has occasion to buy or use such a Pump.

The Base and Lever are adjustable. The Standard is made of a special pipe or casing, a trifle more than 3 inches inside diameter. The Cylinder will give a full 10 inch stroke, and is made of heavy 3 inch wrought iron pipe, brass-lined, and provided with our latest and best removable lower valve, with rubber seat. This valve can be readily removed by taking off the top cap of Pump. The plunger will screw on to the lower valve.

By using 3 inch pipe, the cylinder can be lowered down, say 75 feet in depth.

We would not recommend this Pump for wells of greater depth, on account of the great weight of the pipe. The air valve on the air chamber, when not needed as a force Pump, can be left open.

The detail sectional cut of cylinder shows the valves being removed.

For Villages and School Houses this Pump cannot be excelled. The spout has 1 inch hose connection, adapting it for fire protection and general sprinkling purposes. This Pump has a turned hard-wood lever, with an iron balance weight on the end.

As illustrated and listed, the Farmer's Favorite Pump is adapted for wells 25 feet in depth.

This style of Pump with larger cylinders and for shallow wells only is designated as the "Mammoth" and is illustrated elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig. 285	Size Cyl.	Suction Pipe	Stroke	Cipher	Price
Pump only	3 inches	1¼ inch	10 inches	Bigamy	20 00

B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE "MAMMOTH" FORCE AND LIFT PUMP

FOR SHALLOW WELLS

Fig. 286

Fig. 286 illustrates our Extra Heavy Lift and Force Set-length Pump, for wells not exceeding 25 feet in depth. This is made to meet a demand for a Pump of large capacity, for use in public wells, stock farms, mills and other places where large quantities of water are required.

This Pump is made with $3\frac{1}{4}$ -inch casing set-length, long links between lever and cross head, adjustable base, large air chamber and wood handle with heavy ball balance, thus securing all the good features of the old wooden pump, and eliminating its objectionable features. The Cylinder will give a full 10-inch stroke.

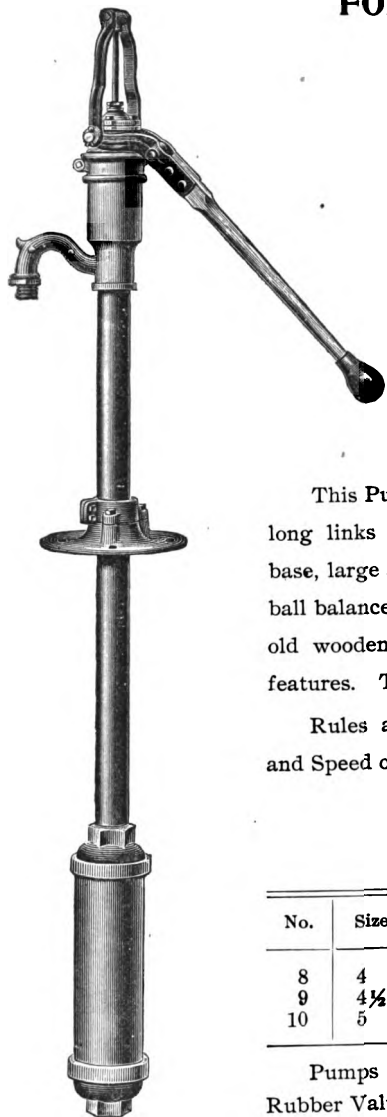
Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Suction Pipe	Stroke	Cipher	Price
8	4 inch	2 inch	10 inch	Biddy	16 00
9	4½ "	2 "	10 "	Biffin	18 00
10	5 "	2½ "	10 "	Biggin	21 00

Pumps Illustrated and Listed above have Patent Rubber Valve Seat.

Fig. 286



In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

SOUTHERN CISTERN AND WELL PUMPS

WITH WORKING BARREL IN THE STOCK

Fig. 225—Lift Pump

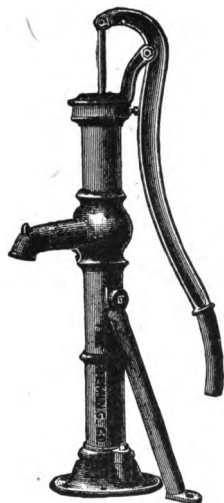


Fig. 226—Force Pump



The Pumps herewith illustrated are adapted for cistern use in cold climates; and in warm climates they may be used also in shallow wells, where the base of Pump can be located not over twenty-five feet above the surface of the water.

The working barrel is in the stock of Pump, and in this respect these Pumps are similar to **Figs. 120, 123**, etc. The stocks or standards, however, are much taller, and in every way they are substantially constructed.

Fig. 226 has one inch hose coupling on spout. The working barrels of these Pumps are bored true and highly polished. To prevent freezing, raise the lever to its extreme height. The lever or handle may be placed in any position for pumping, the same as our Set-length and Cistern Pumps.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Stroke	Fitted for	Fig. 225		Fig. 226	
				Cipher	Price	Cipher	Price
4	3 in.	6 in.	1¼ in. Pipe	Bouncer	8 50	Boundary	13 00
5	3¼ "	6 "	1½ " "	Bouncing	9 00	Bounder	14 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED LIFT PUMP STANDARDS

PIPE CONNECTION UNDER SPOUT

Fig. 224—Open Top

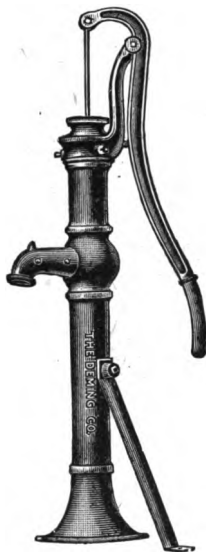


Fig. 228—Tight Top



Figs. 224 and 228, illustrated above, represent Well Pump Standards, suitable for wells from 30 to 70 feet deep—the larger sizes, Nos. 4 and 5, being best adapted for the deeper wells. These Standards have solid base and are threaded for pipe under the spout; they are the same as standards complete of Figs. 210, 211 and 212; and 213, 214 and 215.

To prevent freezing, a small drip hole should be drilled in pipe about three feet below base of the Pump.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	* Fitted for Pipe	Length of Stroke	Fig. 224			Fig. 228		
			Height	Cipher	Price	Height	Cipher	Price
3	1½ inch	6 inches	44 inches	Bracelet	5 50	47 inches	Braggart	6 25
4	1½ "	6 "	45 "	Bracing	6 00	48 "	Braided	6 75
5	1½ "	6 "	47 "	Brackish	6 50	50 "	Braiding	7 25

* Fitted for other sizes of Pipe, when so ordered.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

SPECIAL WELL PUMP STANDARD

PIPE CONNECTION UNDER SPOUT

Fig. 227

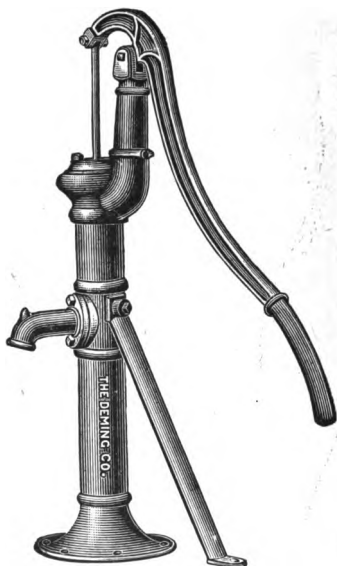


Fig. 227 can be effectively used in wells up to 75 feet in depth.

This Pump is substantially constructed, has a strong brace and a long, heavy lever. The suction pipe is screwed into the stock just below the spout, which lessens liability to damage by frost.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZE AND PRICE

Fig. 227	*Fitted for Pipe	Stroke	Height	Cipher	Price
Standard Complete	1 ¼ inch	8 inches	43 inches	Brakeman	6 00

* Fitted for 1, 1½ or 2 inch Pipe, when so ordered.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED DEEP WELL PUMP STANDARD

WITH TIGHT-TOP ROD GUIDE

Fig. 230

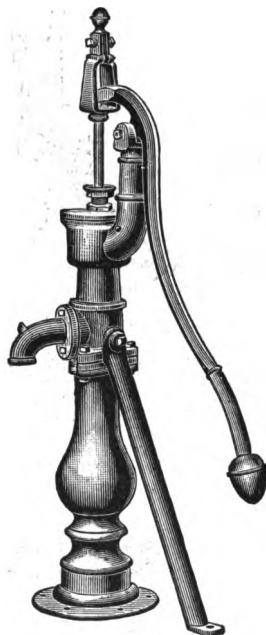


Fig. 230 represents a Deep Well Pump Standard that has won favor throughout the United States, and is very popular for public places, Town Pumps, School Pumps, etc. It is heavy, strong and substantial.

This Pump is made in two sections with pipe flange bolted between, which makes it convenient for setting in a deep well.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZE AND PRICE

Fig. 230	* Fitted for Pipe	Stroke	Height	Cipher	Price
Standard Complete	1½ in.	7 in.	51½ in.	Bramble	10 00

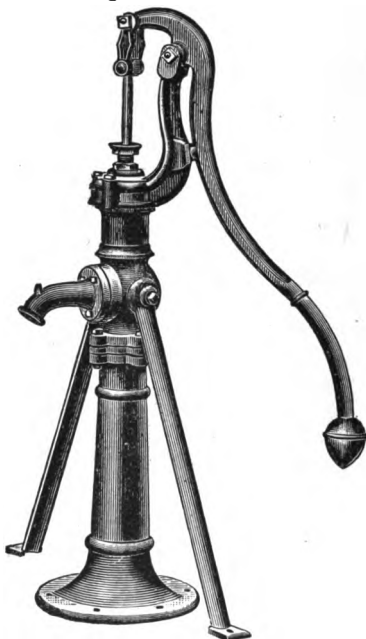
* Fitted for 1½, 2, or 2½ inch Pipe, when so ordered. Extra Pipe Flanges, 50 cents each.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

DEEP WELL LIFT PUMP STANDARD

EXTRA HEAVY

Fig. 232



The above illustration represents our Extra Heavy Lift Pump Standard for very deep wells. It differs from Fig. 230 in that it is much heavier, has two braces for support, and a revolving top so the lever can be placed in any position required. The suction pipe, as in Fig. 230, screws into a flange between the bottom and top sections. The lever is long and is balanced to facilitate pumping when used in deep wells. This is a very desirable Pump for use in public places where constant and rough handling may be anticipated. As a Town Pump and for use in parks, school-house yards, etc., it has no equal. To make anti-freezing, drill a small hole in suction pipe about three feet below the base.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZE AND PRICE

Fig. 232	*Fitted for Pipe	Stroke	Height	Cipher	Price
Standard Complete	1½ inch	7 inches	55 inches	Branching	16 00

*Fitted for 1¼, 2 or 2½ inch Pipe, when so ordered. Extra Pipe Flanges 50 cents each.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

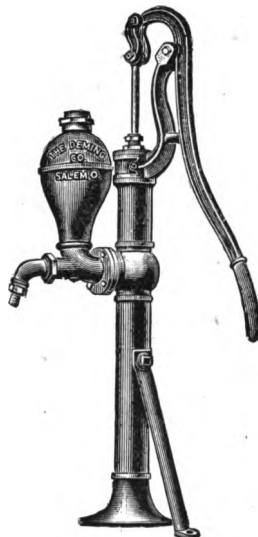
IMPROVED FORCE PUMP STANDARDS

PIPE CONNECTION UNDER SPOUT

Fig. 229



Fig. 239



Well Force Pump Standards, with solid base, **Figs. 229 and 239**, are the same as Standards Complete of **Figs. 219 and 223** respectively. These Standards, used in connection with proper size Cylinders, are adapted for wells from 30 to 70 feet deep. To prevent freezing, the pipe should be provided with a drip-hole three feet below the base to allow the water to flow back after pumping.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Standard Complete	* Fitted for Pipe	Length of Stroke	† Fig. 229			† Fig. 239		
			Height	Cipher	Price	Height	Cipher	Price
	1½ in.	6 inches	48¼ inch	Brained	9 00	49 inch	Brainless	10 00

* Fitted for other sizes of Pipe, when so ordered.

† Figs. 229 and 239, with Cock Spout, 2.50, extra list.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

SPECIAL WELL FORCE PUMP STANDARD

WITH FLANGED BASE

Fig. 241



Fig. 241 has a flange (between the base and stock), into which the suction or connecting pipe is screwed. This makes a very convenient arrangement for deep wells, as the stock may be attached to the base and flange after the pipe, Cylinder and connecting rod are set in the well. **Fig. 241** is particularly adapted for Tubular Wells in pumping by hand. When used in open or drilled wells, to prevent freezing, a drip hole should be drilled in the pipe about three feet below the base.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZE AND PRICE

Fig. 241	*Fitted for Pipe	Stroke	Height	Cipher	Price
Standard Complete	2 inch	6 inches	50 inches	Brambly	11 00

*Fitted for 1¼, 1½, 2, 2½ or 3 inch Pipe, but always as listed, unless otherwise ordered. Extra Pipe Flanges, 50 cts. each.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED DEEP WELL FORCE PUMP STANDARD WITH AIR CHAMBER ON SPOUT

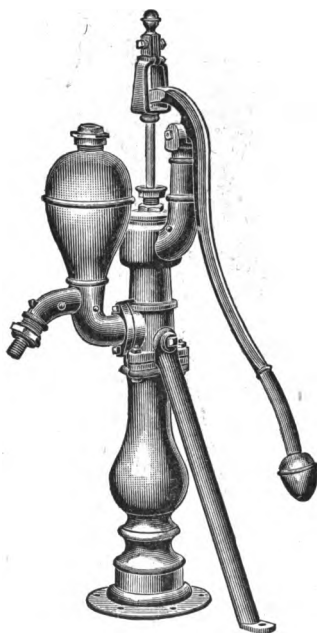
Fig. 231

Fig. 231 represents a Force Pump Standard designed for the same service as **Fig. 230**. In connection with hose it may be used for fire protection, sprinkling lawns, streets, etc. These Pumps are so favorably known that particular description is unnecessary.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZE AND PRICE

Fig. 231	* Fitted for Pipe	Stroke	Height	Cipher	Price
Standard Complete	1¼ in.	7 in.	51½ in.	Branched	13 00

* Fitted for 1½, 2 or 2½ inch Pipe, when so ordered. Extra Pipe Flanges, 50 cents each.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

DEEP WELL FORCE PUMP STANDARD

EXTRA HEAVY

Fig. 233



Fig. 233 is similar to **Fig. 232**, except that it has the Air Chamber and Stuffing-box necessary to make it a Force Pump.

To make anti-freezing, drill a small hole in suction pipe about three feet below the base. With Brake and Wood Levers, see **Fig. 234**.

The significant name of "Town Pump" that is often given **Fig. 233**, indicates its usefulness.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZE AND PRICE

Standard Complete	* Fitted for Pipe.	Stroke	Height	Fig 233	
				Cipher	Price
	1 ½ inch	7 inches	55 inches	Branchless	20 00

* Fitted for 1¼, 2 or 2½ inch Pipe when so ordered. Extra Pipe Flanges, 50 cents each.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

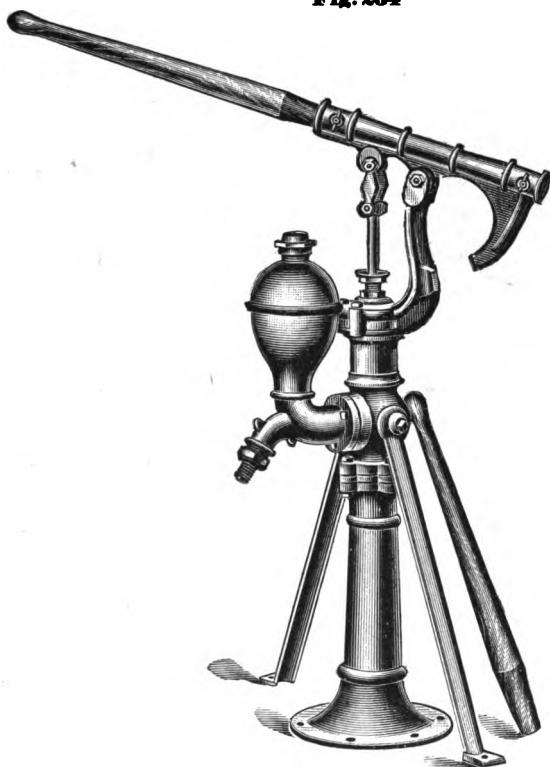
DEEP WELL FORCE PUMP STANDARD**EXTRA HEAVY****Fig. 234**

Fig. 234 is similar to **Fig. 233**, except that it is supplied with Brake and Wood Levers, so that two or more men can operate it for fire protection or other purposes where a constant stream of water is desired.

To make anti-freezing, drill a small hole in suction pipe about three feet below the base.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZE AND PRICE

Standard Complete	* Fitted for Pipe	Stroke	Height	Fig. 234	
				Cipher	Price
	1½ inch	7 inch	55 inches	Brandied	21 00

* Fitted for 1¼, 2, or 2½ inch Pipe, when so ordered. Extra Pipe Flanges, 50 cents each.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

SOUTHERN WELL FORCE PUMPS

BORED AND POLISHED CYLINDER IN STOCK

Fig. 275

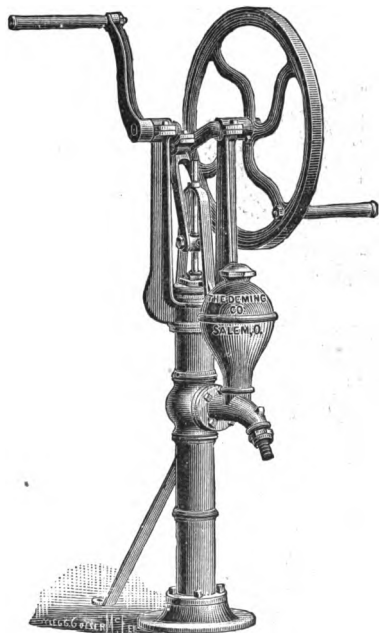
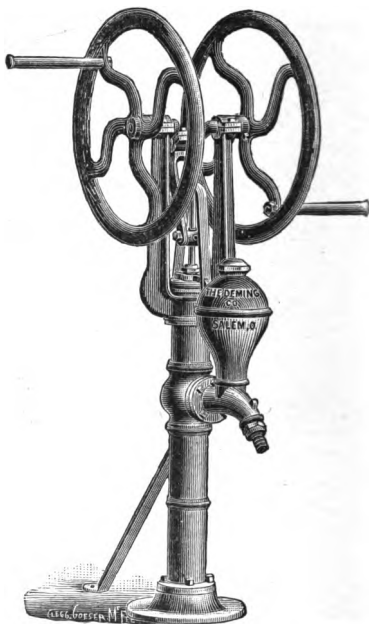


Fig. 274



These pumps are the same as **Fig. 226** in every way, except that heavy bearings with cranks and fly-wheels are furnished in place of lever. They are adapted, as listed, to pump from wells twenty-five feet deep, and should not be used where there is a liability to damage by freezing.

When so ordered, we can furnish these pumps without the plunger and lower valve, fitted for deep wells, to be used in connection with our independent cylinders, listed and described elsewhere.

Fig. 275 has one fly-wheel and crank, as shown above, adapting it for one or two men. **Fig. 274** has two fly-wheels. Otherwise it is the same as **Fig. 275**.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Fitted for Pipe	Length Stroke	Fig. 275		Fig. 274	
				Cipher	Price	Cipher	Price
* 4	3 in.	1 1/4 in.	6 in.	Bounding	30 00	Bountiful	33 00
5	3 1/4 in.	1 1/4 in.	6 in.	Bounteous	33 00	Bounty	38 00

* No. 4 furnished without plunger and valves, for deep wells, at same list prices.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE "COLONIAL" QUICK RETURN LIFT AND FORCE PUMPS

WITH FLY WHEEL AND COMPENSATING LEVER

Fig. 276—Lift Pump

Fig. 277—Force Pump



Figs. 276 and 277 work easier and pump more water than any other pump of same size cylinder, as the compensating lever allows the plunger to recover stroke for its load quickly. They are favorites wherever introduced. As illustrated and listed they have the cylinder and plunger in standard, and are adapted to wells twenty-five feet deep, but will be tapped for pipe for deep wells at same price. When used in deep wells, our independent cylinders, listed elsewhere, should be used.

* If wanted for other than wrought iron suction pipe, the purchaser can easily arrange suction flange to fit bottom flange of pump.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	* Fitted for Pipe	Length Stroke	Fig. 276		Fig. 277	
				Cipher	Price	Cipher	Price
4	3 in.	1½ in.	6 in.	Bonnet	30 00	Boneset	35 00
6	3½ "	2 "	6 "	Bonny	35 00	Bonfire	40 00

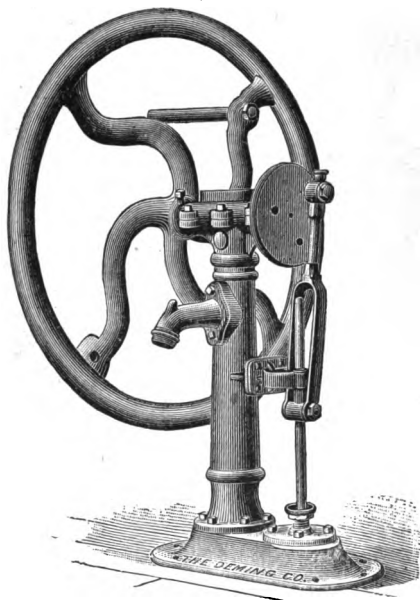
* Fitted for other sizes of pipe, American or Foreign, but always for American pipe, as listed, unless otherwise ordered.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

DEEP WELL FORCE PUMP STANDARD

WITH CRANK FLY-WHEEL FOR HAND USE

Fig. 584



The above cut represents a Deep Well Force Pump Standard, arranged with Crank Fly-wheel, and Pitman with Rod Guide. The Stuffing-box is in the base; to this also the Standard is securely bolted.

At the top of Standard is the crank shaft journal, on one side being the crank fly-wheel, and on the other the face-plate and pitman.

When used for forcing water a distance, we supply in place of spout a flange which is threaded same as suction, if so ordered.

The Cylinders to be used with Fig. 584 are Figs. 302, 303, 304, 305, 310, 312, 319 and 322. Description and lists of Cylinders are given elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	* Fitted for	Stroke	Fly-Wheel	Discharge	Cipher	Price
1	1½ in. Pipe	6 in.	36 in.	Plain Spout or Flange	Brasier	39 00
2	1½ " "	6 "	36 x 4½ in.	" " "	Brassy	41 00

* Fitted for 1½, 1¼, or 2 inch pipe, but always for 1½ inch, unless otherwise ordered. Nos. 1 and 2 always fitted with Plain Spout unless Flange is especially ordered.

No. 1 is shown in cut; No. 2 is the same but with Pulley Fly-wheel for power, similar to Fig. 686.

N, B,—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

WIND MILL LIFT PUMP STANDARDS

FOR DRILLED AND TUBULAR WELLS

Fig. 394

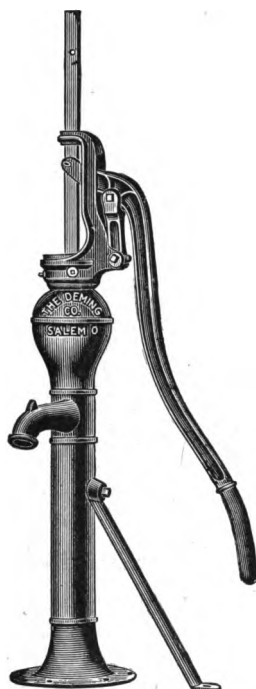


Fig. 395

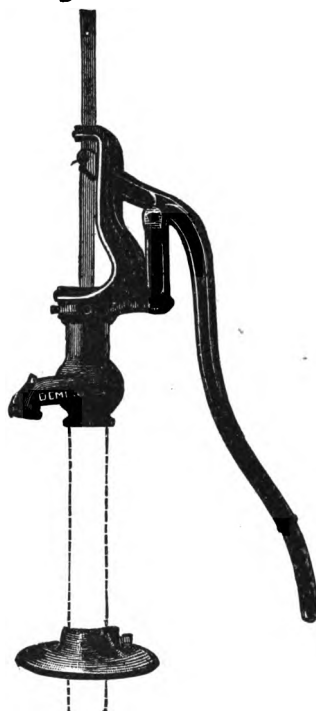


Fig. 394, the Swell Top Wind Mill Lift Pump Standard, represented by the cut to the left, is adapted for either Tubular or Drilled Wells. The enlarged top forms a Water Chamber which prevents the water splashing out around the rod.

Fig. 395 is adapted for Tubular Wells. This Pump is about the same as our Fig. 403 cut off below the spout and threaded for 2, 2½ or 3 inch Tubular Well Pipe, as ordered. The Base is furnished with the top, which gives a finished appearance when attached to Tubular Well Pipe. We make one size of Fig. 394 and two sizes of Fig. 395 (corresponding with Fig. 403, Nos. 3 and 4), as listed below.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig.	No.	WITH SIX INCH STROKE				WITH TEN INCH STROKE			
		Fitted for Pipe	Height	Cipher	Price	Fitted for Pipe	Height	Cipher	Price
*394	....	1½ inch	45 inches	Dabbling	8 00	2 inch	49 inches	Dabbling	9 50
†395	3	2 "	Adjustable	Daintily	6 50	2 "	Adjustable	Dampened	8 00
	4	2 "	"	Damnably	7 00	2 "	"	Dampishly	8 50

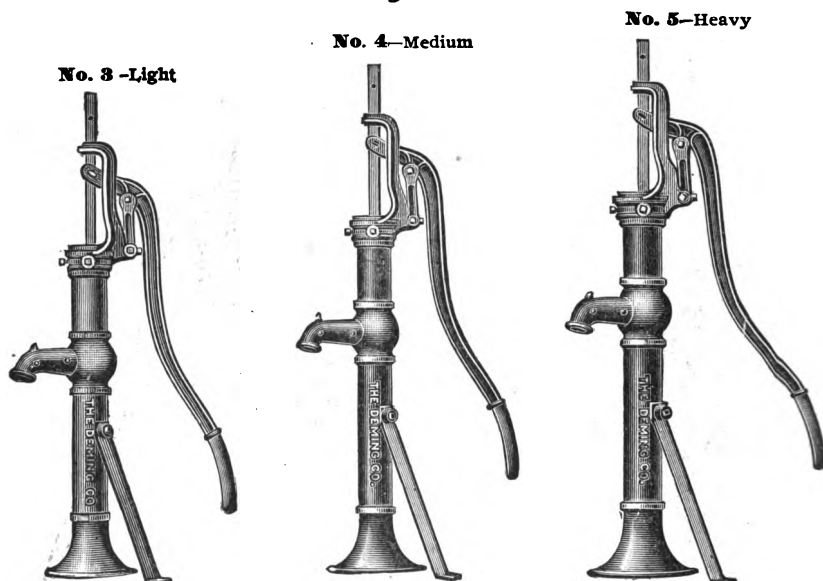
*Fig. 394 when fitted with 2 or 2½ inch Pipe has Forked Wood Rod Coupling for Tubular Wells. Fitted for 1½, 2, 2½ or 3 inch Pipe, but always as listed, unless otherwise ordered.

†Fig. 395 is always fitted with Forked Wood Rod Coupling. Will be fitted for 2½ or 3 inch pipe when ordered.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5,

WIND MILL LIFT PUMP STANDARDS

Fig. 403



The above Pump Standards, as may be seen, are adapted to either hand or Wind Mill purposes. We have combined in these Standards every good quality necessary to make a perfect Pump. They are strong and substantial, and symmetrical in design. The pipe screws into the stock under the spout, which prevents liability to serious damage by frost. A drip-hole should be drilled in the suction pipe about three feet below the base.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	WITH SIX INCH STROKE				WITH TEN INCH STROKE			
	* Fitted for Pipe	Height	Cipher	Price	* Fitted for Pipe	Height	Cipher	Price
3	1 1/4 in.	44 in.	Dahlia	7 00	2 in.	48 in.	Damued	8 50
4	1 1/2 "	45 "	Dainty	7 50	2 "	49 "	Damnabale	9 00
5	1 3/4 "	47 "	Damask	8 00	2 "	51 "	Damnation	9 50

* Fitted for 1, 1 1/4, 1 1/2, or 2 inch Pipe, but always as listed, unless otherwise ordered. Furnished with Forked Rod Coupling when fitted for 2 inch Pipe for Tubular Wells.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

WIND MILL LIFT PUMP STANDARD

WITH ADJUSTABLE STROKE

Fig. 419



Fig. 419 represents a Wind Mill Pump Standard with Adjustable Stroke. The Standard is the same as Fig. 403; Nos. 4 and 5 corresponding with the sizes by these numbers in Fig. 419. The stroke is adjustable from six to seven, eight and ten inches in length by changing the position of the two pins connecting the fulcrum and link with the lever. This Pump is always fitted for two inch pipe with Forked Rod Coupling for Tubular Wells, unless otherwise ordered.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	* Fitted for Pipe	Height	Stroke	Cipher	Price
4	2 in.	49 in.	6, 7, 8 and 10 in.	Damper	9 50
5	2 "	51 "	6, 7, 8 and 10 "	Dampish	10 00

* Fitted for 1, 1½, 1¾ or 2 inch Pipe, but always for 2 inch, unless otherwise ordered.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

WIND MILL LIFT PUMP STANDARD

FOR TUBULAR AND DEEP WELLS

Fig. 401

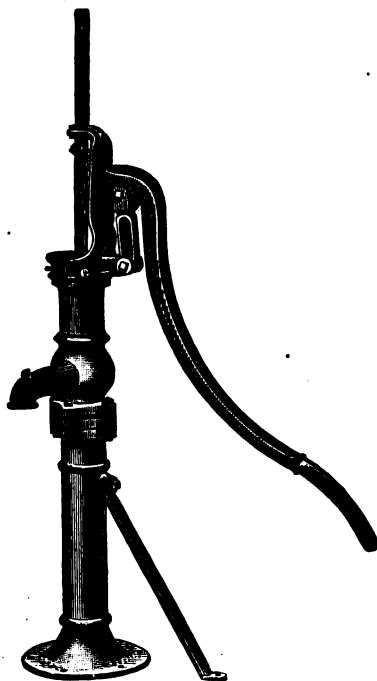


Fig. 401, represented by the cut, is made in two sections with a flange between threaded for Iron Pipe from $1\frac{1}{4}$ inch to $2\frac{1}{2}$ inch, as ordered. It is adapted for open and drilled wells, also for tubular wells.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig. 401	WITH SIX INCH STROKE				WITH TEN INCH STROKE			
	* Fitted for Pipe	Height	Cipher	Price	* Fitted for Pipe	Height	Cipher	Price
Standard Complete	$1\frac{1}{4}$ in.	46 in.	Damson	10 00	2 in.	50 in.	Dancer	11 50

* Fitted for $1\frac{1}{4}$, $1\frac{1}{2}$, 2 or $2\frac{1}{2}$ inch Pipe, but always as listed, unless otherwise ordered. Extra Pipe Flanges, 50 cents each. Furnished with Forked Rod Coupling when fitted for 2 inch Pipe for Tubular Wells.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

EXTRA HEAVY DEEP WELL LIFT PUMP STANDARD

WITH WIND MILL TOP

Fig. 426

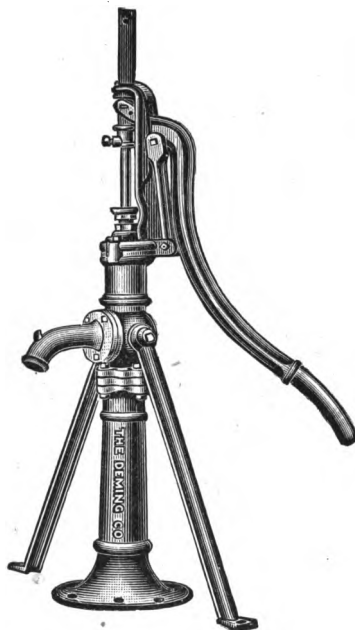


Fig. 426 is the same in construction as **Fig. 232**, with the exception of the Top, and may be worked either by hand or by Wind Mill power. These Pumps may be used in wells over 200 feet deep, their construction adapting them for the deepest wells.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig. 426 Standard Complete	WITH SIX INCH STROKE				WITH TEN INCH STROKE			
	* Fitted for Pipe	Height	Cipher	Price	* Fitted for Pipe	Height	Cipher	Price
	1½ in.	55 in.	Deadish	17 00	2 in.	59 in.	Deafen	18 50

* Fitted for 1½, 1¾, 2, or 2½ inch Pipe, but always as listed, unless otherwise ordered. Extra Pipe Flanges, 50 cents each.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

WIND MILL LIFT PUMP STANDARDS

WITH LONG FULCRUM

Fig. 494

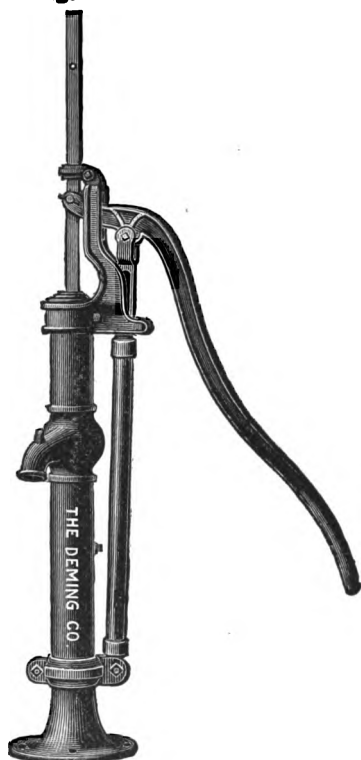
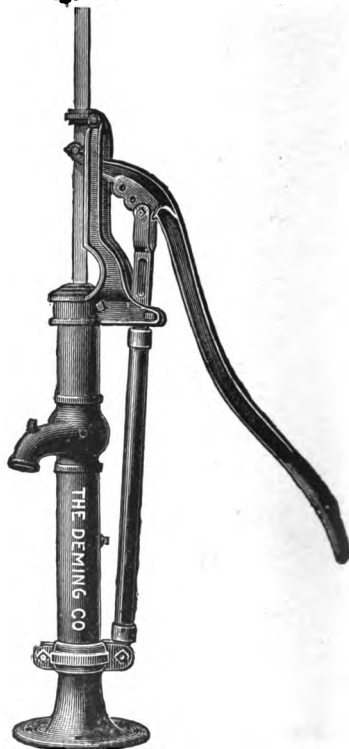


Fig. 495



Our Improved Wind Mill Pump Standards, with extra long Fulcrums, will be greatly appreciated by Pump dealers and users. The long Fulcrum throws all the strain of the Lever on the Standard of the Pump, instead of on the Pump Top. By this arrangement, the Pump Top and Rod Guide will always remain rigid and in place. Fig. 495 has adjustable stroke.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed on pages 78 to 81.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig.	Stroke	*Fitted for Pipe	Cipher	Price
494	6 inches	1½ inch	Deity	8 00
495	6, 8 and 10 inches	2 " "	Dejection	9 50

*Fitted for 1, 1½, 1¾ or 2 inch Pipe, but always as listed, unless otherwise ordered.

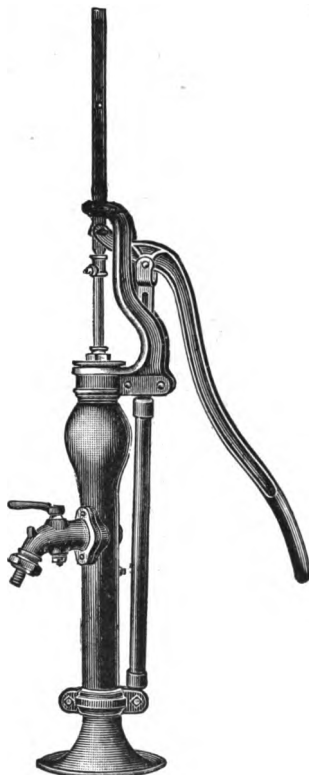
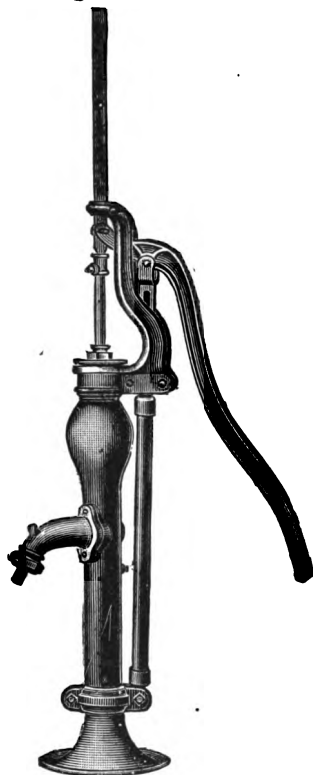
N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue,

WIND MILL FORCE PUMP STANDARDS

Fig. 496

WITH LONG FULCRUM

Fig. 497



Figs. 496 and 497, illustrated above, with long fulcrums, are similar to Lift Pumps, Figs. 494 and 495, in that the strain of lever is borne by the standard. They have back outlet for discharging into tank, and have hose coupling on spout.

Figs. 498 and 499 have *adjustable stroke*, 6, 8 and 10 inch; otherwise are the same as Figs. 496 and 497 respectively.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig.	Stroke	*Fitted for Pipe	Cipher	Price
496	6 inch	1½ inch	Delight	10 00
497	6 "	1½ "	Delirium	12 50
498	6, 8 or 10 inch	2 "	Delusion	12 00
499	6, 8 or 10 "	2 "	Demagogue	14 50

*Fitted for 1½, 1¼ or 2 inch pipe, but always as listed, unless otherwise ordered.

When fitted for 2 inch pipe are furnished with Forked Wood-rod Coupling for Tubular Well's.

N. B.—Alphabetical Index is in front, and Figure Index in back of Catalogue.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

WIND MILL FORCE PUMP STANDARDS

WITH BOLTED BEARER TOP

Fig. 440



Fig. 444



These Standards are the most perfect ever offered for Wind Mill and hand use. The fulcrum is bolted to top of standard and piston rod is always in line. They have back outlet. They are made to templates, and repairs always fit.

Cylinders or Working Barrels for these Standards are listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig.	WITH SIX INCH STROKE				WITH TEN INCH STROKE			
	*Fitted for Pipe	Height	Cipher	Price	*Fitted for Pipe	Height	Cipher	Price
440	1 1/4 inch	46 inch	Dubber	10 00	2 inches	50 inches	Dubbing	11 50
444	1 1/4 "	46 inch	Dubious	12 50	2 "	50 "	Dubiously	14 00

*Fitted for 1 1/4, 1 1/2 or 2 inch pipe, but always as listed, unless otherwise ordered. These Pumps with 10 inch stroke for 2 inch pipe are furnished with Forked Wood-rod Coupling for Tubular Wells.

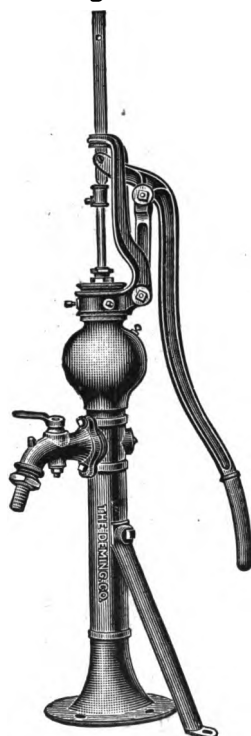
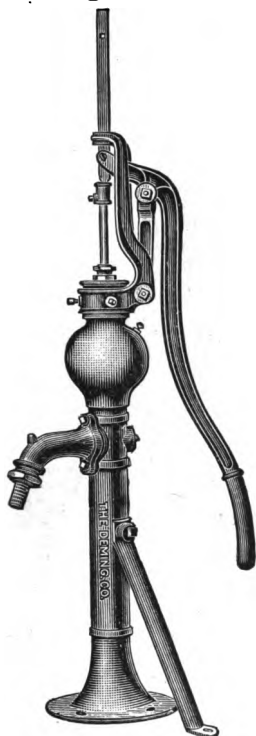
N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

WIND MILL FORCE PUMP STANDARDS

Fig. 418

WITH BACK OUTLET

Fig. 428



Figs. 418 and 428, Wind Mill Force Pump Standards, differ only in the style of spout. These Standards are tall and well proportioned, the spout is over twenty inches above the base, admitting discharge of water direct into the house tank, which makes them very desirable as House Pumps. When fitted for two inch pipe they are adapted for Tubular Wells, and are furnished with Forked Wood-rod Coupling.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig.	WITH SIX INCH STROKE.				WITH TEN INCH STROKE			
	*Fitted For Pipe	Height	Cipher	Price	*Fitted For Pipe	Height	Cipher	Price
418	1½ inch	47 inches	Dapper	10 00	2 inch	51 inches	Dapped	11 50
428	1½ " "	47 " "	Daring	12 50	2 " "	51 " "	Darkness	14 00

*Fitted for 1½, 1½, or 2 inch Pipe, but always as listed, unless otherwise ordered.

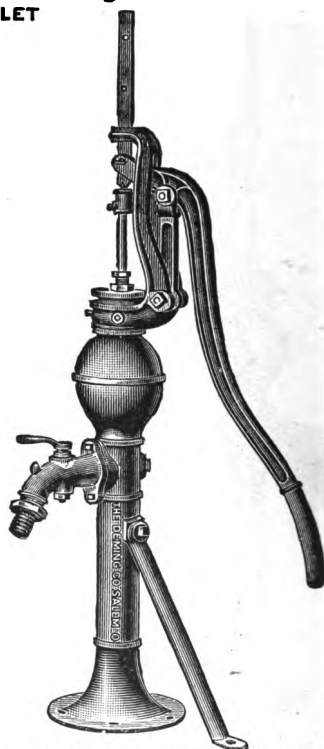
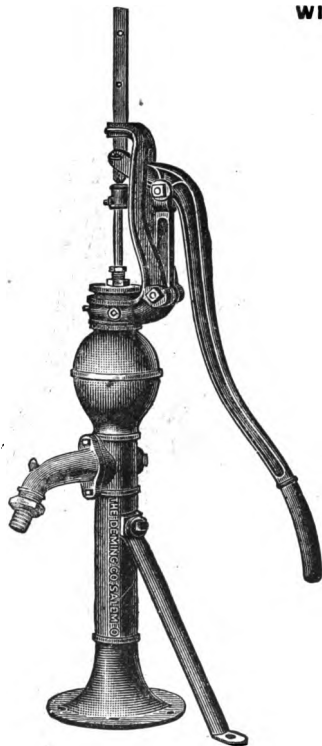
In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

IMPROVED WIND MILL FORCE PUMP STANDARDS

Fig. 414

WITH BACK OUTLET

Fig. 424



Figs. 414 and 424 represent our new style medium weight Force Pump Standards for Wind Mill or Hand use. They are handsome in appearance and substantial in construction. These Pumps are lighter in weight than Figs. 404 and 411 respectively, which they resemble in appearance. When fitted for 2 inch pipe for Tubular Wells, they are furnished with forked rod coupling.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig.	WITH SIX INCH STROKE				WITH TEN INCH STROKE			
	*Fitted For Pipe	Height	Cipher	Price	*Fitted For Pipe	Height	Cipher	Price
414	1½ inch	46 inches	Dangerous	10 00	2 inch	50 inches	Dandruff	11 50
424	1½ "	46 "	Dangled	12 50	2 "	50 "	Dandruff	14 00

* Fitted for 1½, 1½, or 2 inch Pipe, but always as listed, unless otherwise ordered.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

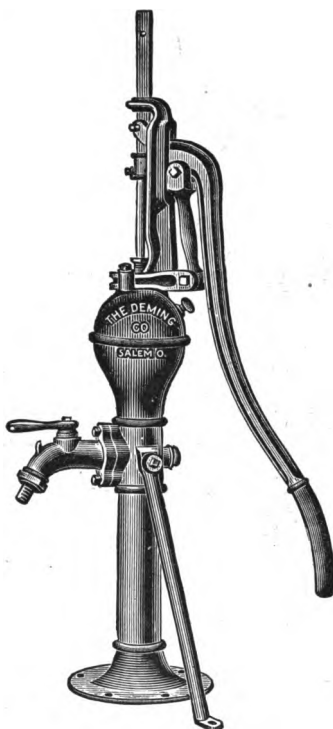
WIND MILL FORCE PUMP STANDARDS

WITH BACK OUTLET

Fig. 404



Fig. 411



Figs. 404 and 411 represent our Heavy Wind Mill Force Pump Standards, extremely popular Pumps in many sections of this country.

Fig. 404 is the same as Fig. 411, except that the spout is plain. These Pumps are especially designed for strength and durability.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig.	No.	WITH SIX INCH STROKE				WITH TEN INCH STROKE			
		*Fitted for Pipe	Height	Cipher	Price	*Fitted for Pipe	Height	Cipher	Price
404	4	1½ in.	47 in.	Darling	12 00	2 in.	51 in.	Dastard	13 50
	5	1¼ " "	49 "	Darted	13 00	2 " "	53 "	Dative	14 50
411	4	1½ " "	47 "	Dauber	14 50	2 " "	51 "	Daunted	16 00
	5	1¼ " "	49 "	Daubery	15 50	2 " "	53 "	Dauntless	17 00

*Fitted for 1, 1½, 1¾ or 2 inch Pipe, but always as listed, unless otherwise ordered. Figs. 404 and 411, when fitted for 2 inch Pipe, are furnished with Forked Rod Coupling for Tubular Wells.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

WIND MILL FORCE PUMP STANDARD

IN TWO SECTIONS. FLANGED UNDER SPOUT

Fig. 406



The above cut represents Fig. 406; it is built in two sections, with pipe flange connecting them just below the spout. This Pump Standard is similar to Fig. 401 in this respect. Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig. 406	WITH SIX INCH STROKE				WITH TEN INCH STROKE			
	* Fitted for Pipe	Height	Cipher.	Price	* Fitted for Pipe	Height	Cipher	Price
Standard Complete...	1½ inch	49 in.	Deacon	13 50	2 inch	53 in.	Deaden	15 00
With Cock on Spout ..	1½ "	49 "	Deaconry	16 00	2 "	53 "	Deadening	17 50

* Fitted for 1½, 1½, 2 or 2½ inch Pipe, but always as listed, unless otherwise ordered. Fig. 406 when fitted for 2 inch Pipe, furnished with Forked Rod Coupling for Tubular Wells. Extra Flanges, 50 cents each.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

WIND MILL FORCE PUMP STANDARD

WITH COCK SPOUT AND FLANGED BASE

Fig. 407

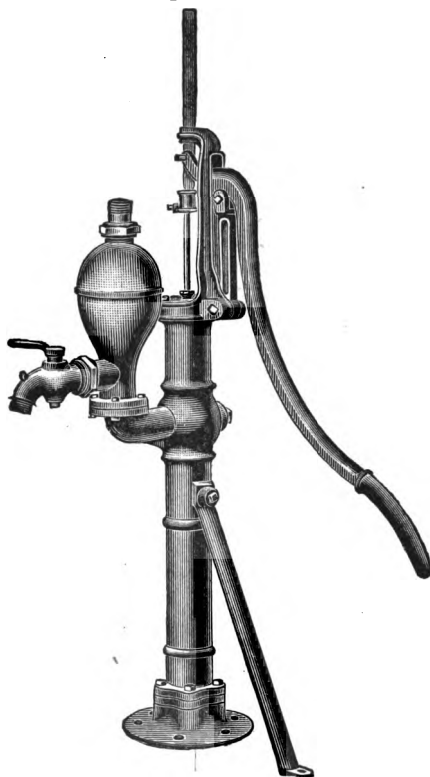


Fig. 407 represents a Pump similar in general construction and appearance to others, the difference being in the Air Chamber and location of the Flange for pipe, which, in Fig. 407, is just above the base. It also has an upward and back outlet or discharge, and a cock on the spout. It can be attached to Pipe up to three inches, which especially adapts it to large size Tubular or Artesian Wells.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig. 407	WITH SIX INCH STROKE				WITH TEN INCH STROKE			
	* Fitted for Pipe	Height	Cipher	Price	* Fitted for Pipe	Height	Cipher	Price
Standard Complete	1 1/4 inch	49 inches	Deanery	16 00	2 inch	53 inches	Deanship	17 50

* Fitted for 1 1/4, 1 1/2, 2, 2 1/2 or 3 inch Pipe, but always as listed, unless otherwise ordered.

Fig. 407, when fitted for 2 inch Pipe, furnished with Forked Rod Coupling for Tubular Wells. Extra Flanges, 50 cents each.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

WIND MILL FORCE PUMP STANDARD

WITH AIR CHAMBER ON SPOUT

Fig. 405



The above cut represents a Force Pump Standard possessing all the features necessary to a perfect Wind Mill Pump. It has an outlet on top of the Air Chamber for discharging to a tank, and has a hose coupling on the spout. The Stock is threaded for pipe just below the spout. We recommend Figs. 308, 309, 310, 312 and 322 (listed elsewhere) to be used with this Standard for open or drilled wells.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig. 405	WITH SIX INCH STROKE			WITH TEN INCH STROKE			ADJUSTABLE STROKE		
	*Fitted for Pipe	Cipher	Price	*Fitted for Pipe	Cipher	Price	*Fitted for Pipe	Cipher	Price
Standard Complete With Cock Spout...	1 1/4 in.	Dauphin	13 00	2 in.	Daylight	14 50	2 in.	Dazzle	15 50
	1 1/4 "	Dawdle	13 50	2 "	Daytime	17 00	2 "	Dazzling	18 00

*Fitted for 1, 1 1/4, 1 1/2, or 2 inch pipe, but always as listed, unless otherwise ordered. Fig. 405, with 10 inch and adjustable stroke for 2 inch pipe, furnished with Forked Rod Coupling for Tubular Wells. The Adjustable Stroke Pumps are adapted for 6, 8, or 10 inch stroke.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

EXTRA HEAVY DEEP WELL FORCE PUMP STANDARD

WITH WIND MILL TOP

Fig. 427

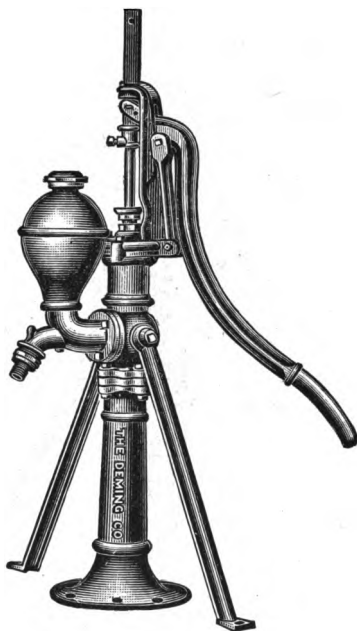


Fig. 427 represents a Wind Mill Force Pump Standard similar in construction to Fig. 426.

The double Braces render the Standards of this style very desirable for wells over 200 feet deep. Fig. 427 is heavy, strong and durable, being equally well adapted for hand or Wind Mill use.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig. 427	WITH SIX INCH STROKE				WITH TEN INCH STROKE			
	* Fitted for Pipe	Height	Cipher	Price	* Fitted for Pipe	Height	Cipher	Price
Standard Complete	1½ in.	55 in.	Deafness	21 00	2 in.	59 in.	Dealing	22 50

* Fitted for 1¼, 1½, 2 or 2½ inch Pipe; but always as listed, unless otherwise ordered. Extra Pipe Flanges, 50 cents each.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

ADJUSTABLE STROKE WIND MILL FORCE PUMP STANDARD

SWIVEL TOP AND SPOUT
WITH COCK SPOUT AND SIZE OUTLET

Fig. 484

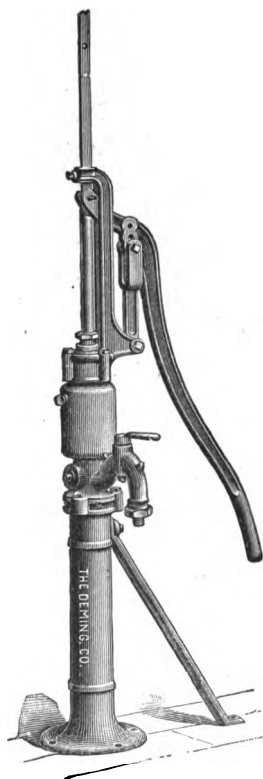


Fig. 484 is a very useful Force Pump Standard, with wind mill top and swivel spout. This pump can be used with any of our independent cylinders shown elsewhere. In certain cases there are advantages in using a pump of this kind, since the position of the spout and lever can be changed at will after the pump is set in the well. The fulcrum top and the spout can be placed in any desired position with relation to each other. The stroke may be made 6, 8 or 10 inch.

This Pump, as shown in cut, has solid rod, which can be removed without disturbing the Fulcrum Top or Stuffing Box. This is a great advantage in fitting the Pump for well.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZE AND PRICE

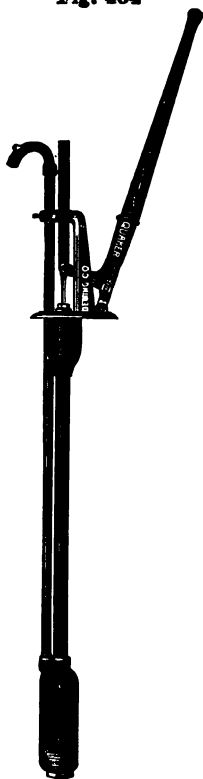
Fig.	* Fitted for Pipe	Stroke	Height to Spout	Height to top of Rod Guide	Cipher	Price
484	1¼ inch	Adj.	22 inches	53 inches	Deposer	15 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE QUAKER DOUBLE-ACTING FORCE PUMP

WITH WIND MILL TOP AND WOOD LEVER

Fig. 464



Figs. 464 and 465

The engraving on this page represents **Fig. 464**, a new double-acting force pump, with wind mill top, which is furnished without the lower cylinder. It has differential upper cylinder, which, in connection with air chamber, causes it to throw an absolutely continuous stream of water.

The general construction of this pump is simple, and having few parts it is not liable to get out of order. The wood lever may be taken out and set aside when out of use, so that children cannot tamper with the pump. The upper cylinder is brass lined. The lower cylinder, as stated, is not furnished with the outfit, but cylinders adapted for it are listed elsewhere. It can be used with iron, brass-lined or brass tube cylinders. Our brass-lined cylinders, **Figs. 308 and 309**, are largely used in connection with this class of pumps.

Fig. 465 is the same as **Fig. 464**, but with 3-way cock in the discharge, the same being operated by a lever above the platform.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Upper Cylinder	Adapted for Lower Cylinder	Fitted for Pipe	Stroke	Fig. 464		Fig. 465	
					Cipher	Price	Cipher	Price
2	1½ in.	2½ in.	1½ in.	6 in.	Brinish	11 00	Brisket	14 00
4	2½ "	3 "	1¼ "	6 "	Briny	12 00	Briskly	15 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

NEW ADJUSTABLE BASE

Fig. 266



PIPE PATTERN FORCE PUMPS

Figs. 265, 266, 267 and 268

Fig. 266 illustrates a new adjustable base, pipe pattern, wind mill top, Force Pump, designed to meet the demand for a pump that may be used for open, drilled or driven wells, in connection with $1\frac{1}{4}$ or $1\frac{1}{2}$ inch pipe, also for 2 inch tubular wells. When ordered for tubular wells, a Forked Wood-rod Coupling is furnished. It has $1\frac{1}{4}$ inch air chamber pipe and $\frac{3}{4}$ inch discharge pipe. The stuffing-box is in a cap which is bolted to the main casting, and may be readily removed for repairs. It has a three-way distributing cock in discharge pipe.

Fig. 265 is identical with **Fig. 266**, except that it does not have a three-way distributing cock.

† **Fig. 267**, shown in cut, is the same as **Fig. 265**, except it has a 1 inch differential plunger in place of a stuffing-box.

† **Fig. 268** is identical with **Fig. 267**, except it has a three-way underground distributing cock in discharge pipe.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

Fig. 267



SIZES AND PRICES

Fig.	WITH SIX INCH STROKE				WITH TEN INCH STROKE			
	*Suction Fitted for Pipe	*Discharge Fitted for Pipe	Cipher	Price	*Suction Fitted for Pipe	*Discharge Fitted for Pipe	Cipher	Price
265	$1\frac{1}{4}$ inch	$\frac{3}{4}$ inch	Depict	11 00	2 inch	$\frac{3}{4}$ inch	Depilous	12 50
266	$1\frac{1}{2}$ "	$\frac{3}{4}$ "	Depiction	14 00	2 "	$\frac{3}{4}$ "	Deploy	15 50
†267	$1\frac{1}{2}$ "	$\frac{3}{4}$ "	Depicture	12 00	2 "	$\frac{3}{4}$ "	Deplume	13 50
†268	$1\frac{1}{2}$ "	$\frac{3}{4}$ "	Depilate	15 00	2 "	$\frac{3}{4}$ "	Depone	16 50

* Fitted for $1\frac{1}{4}$, $1\frac{1}{2}$ or 2 inch Suction Pipe, but always as listed unless otherwise ordered. Discharge is always for $\frac{3}{4}$ inch pipe.

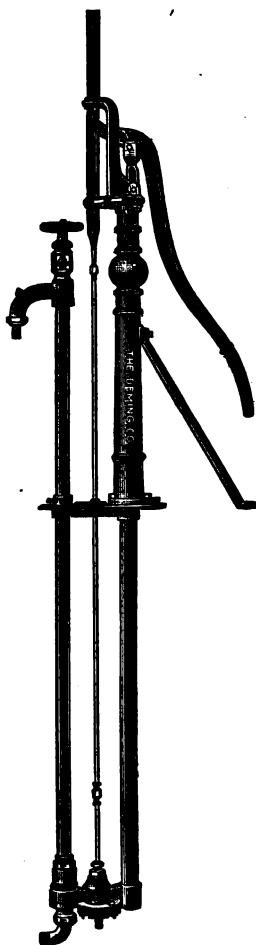
† Figs. 267 and 268 with $1\frac{1}{2}$ -inch Differential Plunger, 50 cts. extra list. Always furnished with 1-inch Differential Plunger as listed unless otherwise ordered.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue,

ANTI-FREEZING WIND MILL FORCE PUMP

WITH IMPROVED VERTICAL DISTRIBUTING VALVE

Fig. 415



The construction of this Pump is the same as that of Fig. 410. It has been placed on the market to meet an increasing demand for a lighter and cheaper Pump of its class, and for all ordinary work it will be found satisfactory. It differs from Fig. 410 only in the weight and size of Air Chamber Pipe, which is $1\frac{1}{2}$ inch. It is made with our Challenge Distributing Valve.

When Fig. 415 is used on Tubular Wells, the Plunger may be withdrawn the same as in Fig. 410.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig.	WITH SIX INCH STROKE			WITH TEN INCH STROKE		
	* Fitted for Pipe	Cipher	Price	* Fitted for Pipe	Cipher	Price
415	{ $1\frac{1}{4}$ in. suction 1 " discharge }	Debauch	17 00	2 in. suction	Debenture	18 50
416		Debilitate	16 00	1 " discharge	Debility	17 50

† Fig. 416 is the same as Fig. 415, except that $1\frac{1}{4}$ inch pipe is used for Air Chamber instead of $1\frac{1}{2}$ inch; and it is not arranged to draw out Plunger in Tubular Wells.

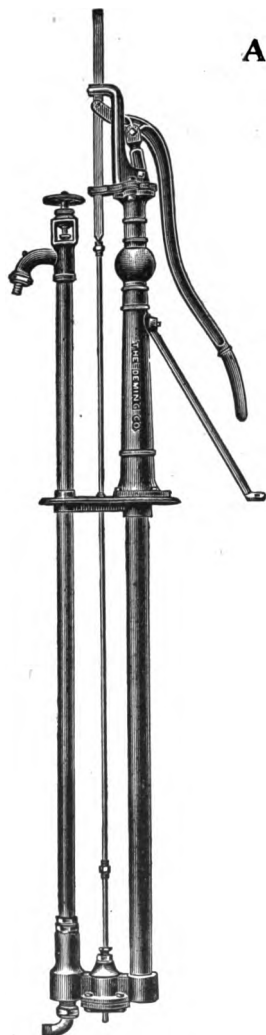
* Fitted for 1, $1\frac{1}{4}$, $1\frac{1}{2}$, or 2 inch Suction Pipe, and $\frac{3}{4}$, 1, or $1\frac{1}{4}$ inch Discharge Pipe, but always as listed, unless otherwise ordered. When fitted for 2 inch Pipe, furnished with Forked Rod Coupling, for Tubular Wells. Extra Flanges, for Figs. 415 or 416, \$1 00 each.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

ANTI-FREEZING WIND MILL FORCE PUMPS

WITH IMPROVED VERTICAL DISTRIBUTING
VALVES

Figs. 410 and 412



These Pumps have been perfected to meet the requirements of the principal Wind Mill manufacturers in the United States for better Wind Mill Force Pumps with Three-way Valves than have heretofore been produced. They have become the leading Anti-freezing Three-way Pumps, and are accepted by Wind Mill manufacturers and dealers generally as the best Three-way Wind Mill Force Pumps on the market. They have won their reputation on their merits, are the original Pump of their class, and have been in use for fifteen years without a successful rival.

The especial feature of these Pumps is their distributing valve. During the fifteen years that we have made it, this has never failed to operate satisfactorily, a record we challenge any other maker to equal.

The brass Union Elbow Coupling for underground connection can be turned to suit the direction of the pipe. The Air Chamber Pipe is two inches in diameter, which insures ease of operation and a steady flow of water.

Fig. 410 will admit of withdrawal of valves from 2 inch Tubular Wells without disturbing pipe connections.

Fig. 412 will admit of withdrawal of valves from 2½ and 3 inch wells without disturbing pipe connections.

Cylinders or Working Barrels for use with these Pump Standards are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Standards Complete as per cut	WITH SIX INCH STROKE			WITH TEN INCH STROKE			WITH ADJUSTABLE STROKE		
	* Fitted for	Cipher	Price	* Fitted for	Cipher	Price	* Fitted for	Cipher	Price
Fig. 410	1½ in. S.P.	Debarked	18 00	2 in. S.P.	Debasing	19 50	2 in. S.P.	Debatable	20 50
	1 " D.P.			1 " D.P.			1 " D.P.		
Fig. 412	3 " S.P.	Dabster	19 00	3 " S.P.	Daisy	20 50	3 " S.P.	Dandelion	21 50
	1 " D.P.			1 " D.P.			1 " D.P.		

* Fitted for 1, 1½, 1¾, 2, 2½ or 3 inch Suction Pipe, and ¾, 1, 1½ inch Discharge Pipe, but always as listed, unless otherwise ordered. Furnished with Forked Rod Coupling when fitted for Tubular Wells.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

SPECIAL ANTI-FREEZING WIND MILL FORCE PUMP

**WITH VERTICAL DISTRIBUTING VALVE AND BRASS
TUBE CYLINDER**

Fig. 425

Fig. 425 is our Three-way Wind Mill Force Pump (Fig. 415) with Brass Tube Cylinder Fig. 312 attached to the flange. It is an excellent Pump for shallow wells and saves the trouble and expense of fitting up the Cylinder to a short section of pipe and rod. For forcing water into a house tank from a shallow well or cistern by Hand or Wind Mill, this Pump will do the best of service.

These Pumps with 6 inch stroke have Fig. 312 Brass Tube Cylinder 10 inches long with all Brass "F" style Plunger, and the 10 inch stroke Pumps have Fig. 312 Cylinder 14 inches long with "F" Plunger.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl	WITH SIX INCH STROKE				WITH TEN INCH STROKE			
		* Suction Fitted for Pipe	* Discharge Fitted for Pipe	Cipher	Price	* Suction Fitted for Pipe	* Discharge Fitted for Pipe	Cipher	Price
2	2½ in.	1½ in.	1 in.	Debauched	21 00	1½ in.	1 in.	Debentured	23 00
4	3 " "	1½ " "	1 " "	Debauching	22 00	1½ " "	1 " "	Debilitation	25 00
6	3½ " "	1½ " "	1½ " "	Debilitated	23 00	1½ " "	1½ " "	Debris	27 00

* Fitted for other sizes Suction and Discharge Pipe when especially so ordered, but we recommend fitting these Pumps for sizes of Pipe as listed.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

DOUBLE ACTING ANTI-FREEZING WIND MILL FORCE PUMP

**WITH VERTICAL DISTRIBUTING
DISCHARGE VALVE**

Fig. 429

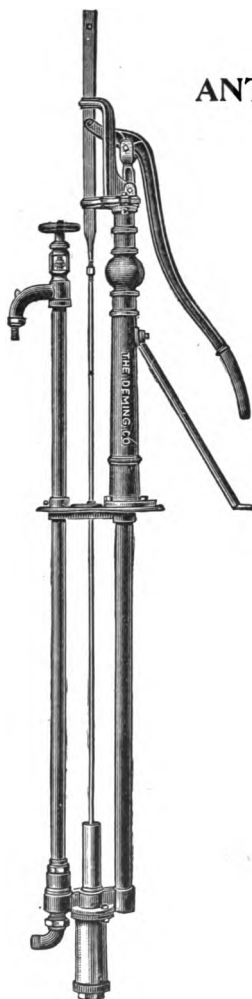


Fig. 429 is especially designed for Shallow Well Wind Mill service, and when used, as shown in illustration, with Cylinder attached to the bottom section, is adapted for wells not more than 28 feet deep. By using an independent Cylinder and lowering it to the bottom of the well, they are equally serviceable for deep wells. They are similar in design to our **Fig. 415**, and will be found to be one of the best Pumps of their class on the market.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size of Cyl.	Stroke	Suction fitted for Pipe	Discharge fitted for Pipe	BRASS CYL.		BRASS LINED CYL.	
					Cipher	Price	Cipher	Price
2	2½ inch	6 inch	1¼ inch	1 inch	Daughter	25 00	Decedent	24 00
4	3 " "	6 " "	1½ " "	1 " "	Deathly	27 00	Decumbent	25 00

Pump and Cylinder attachments for deep well work, \$1.00 each.

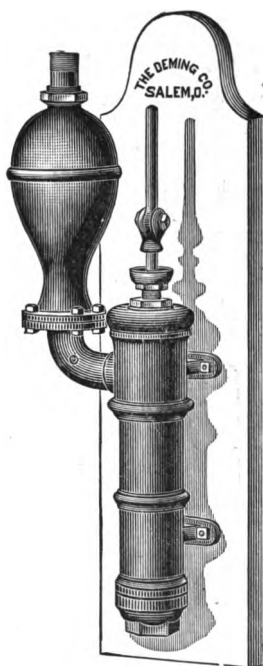
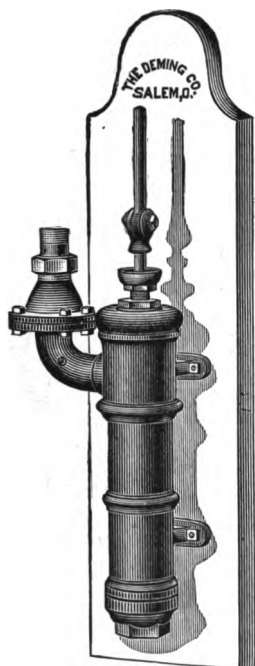
N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

SPECIAL POWER FORCE PUMPS ON PLANK

Fig. 500

WITH PITMAN FOR POWER

Fig. 501



The Pumps illustrated above are for Power or Wind Mill use. As listed, they are arranged with Pitman for any kind of Power. When used in connection with a Wind Mill, it is preferable to have a Forked Rod Coupling, to which the Wood Rod of the Wind Mill is attached. Both Pumps have 6 inch Stroke.

Where water must be forced to a great height, we recommend Fig. 501, with Air Chamber. These Pumps, to give satisfactory results, should not be placed more than twenty-five feet above the water.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Suction and Discharge Fitted for	FIG. 500				FIG. 501			
			IRON		BRASS LINED		IRON		BRASS LINED	
			Cipher	Price	Cipher	Price	Cipher	Price	Cipher	Price
1	2 in.	1 in. Pipe	Empire	10 00	Empty	12 50	Emulate	11 50	Emulsion	14 00
2	2½ "	1½ " "	Emporium	10 50	Emptier	13 00	Emulation	12 00	Enacted	14 50
3	3 "	1½ " "	Empress	11 00	Emptiness	14 50	Emulator	12 50	Enactor	16 00

Forked Rod Coupling for Wind Mill attachment, \$1 50 extra list.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

IMPROVED WIND MILL STUFFING-BOX HEADS

WITH BRASS-CASED ROD

Fig. 446



Fig. 447

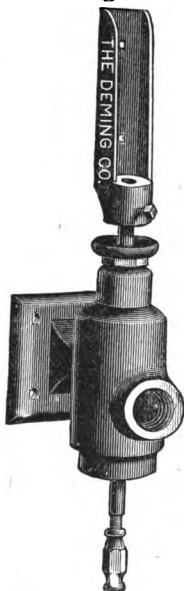


Fig. 448

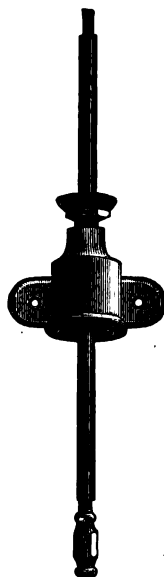


Fig. 449



These Stuffing-box Heads for Wind Mill use may be used in shallow or deep wells, where a Force Pump Standard would not be suitable. They are made of Iron (except Fig. 449, which is all brass), with the Gland of Brass, and Brass-Cased Rod. If ordered, Figs. 448 and 449 are fitted with coupling on both ends of the rod. Figs. 446 and 447 have Wind Mill attachment at top, and have a discharge connection above the suction. The discharge from Figs. 448 and 449 is made by a Tee attached to the suction pipe below.

Cylinders or Working Barrels for use with these Heads are shown and listed elsewhere. Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig.	Stroke	FOR 1¼ IN. PIPE		FOR 1½ IN. PIPE		FOR 2 IN. PIPE		FOR 2½ IN. PIPE		FOR 3 IN. PIPE	
		Cipher	Price	Cipher	Price	Cipher	Price	Cipher	Price	Cipher	Price
446	12 in.	Decamp	5 00	Depute	5 50	Deride	6 00	Derrick	7 00	Despot	7 50
447	12 "	Decanter	5 00	Deputy	5 50	Dermal	6 00	Dervish	7 00	Deter	7 50
448	12 "	Decapitate	3 00	Derrail	3 00	Dernly	3 00	Descry	3 75	Detest	4 50
449	12 "	Decayed	4 00	Derby	5 00	Dermic	6 00	Desert	7 50	Detrude	10 00

Figs. 446 and 447 may be fitted for 1¼, 1½, 2, 2½ or 3 inch Discharge Pipe, but will always be fitted with same size discharge as suction pipe, unless otherwise ordered.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED DEEP WELL WORKING HEADS

WITH DOUBLE ROD GUIDES AND POWER ATTACHMENTS

Fig. 434

Fig. 436

Fig. 439

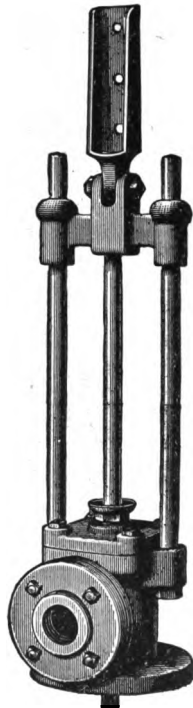
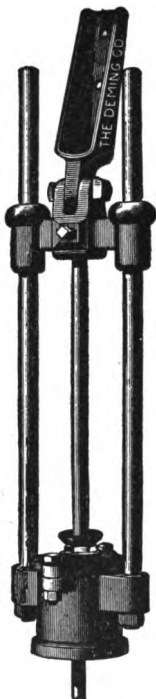


Fig. 434 has flanged base to bolt to platform or foundation. The base is threaded for the pipe that connects with cylinder. It has a check valve under air chamber, which adapts it for forcing as well as lifting water.

Fig. 439 is much heavier than Fig. 431, and may be used with larger cylinders. It has a flanged base that is threaded for the pipe that connects with cylinder.

Fig. 436 is intended to screw on the well casing for wells where the cylinder is locked into the casing. A Tee is used on casing below the head to provide a discharge opening.

With these heads, when the cylinder used is of less diameter than the pipe which connects it with the head, the plunger and valve may be withdrawn by removing the stuffing box flange. Piston rods are threaded $\frac{3}{4}$ inch U. S. Standard. Cylinders or working barrels, Figs. 311 and 324, for use with these Heads are listed elsewhere.

SIZES AND PRICES

No.	Fig.	Stroke	Threaded for Cyl. Pipe	Discharge	Cipher	Price
1	434	10 inch	3 inch or less	$1\frac{1}{2}$ inch or less	Dedolent	20 00
1	434	16 "	3 " "	$1\frac{1}{2}$ " "	Defacing	23 00
2	434	10 "	4 " "	$2\frac{1}{2}$ " "	Defension	25 00
2	434	16 "	4 " "	$2\frac{1}{2}$ " "	Defensive	28 00
.....	436	16 "	3 " "	.....	Decalogue	15 00
.....	439	16 "	$4\frac{1}{2}$ " "	$2\frac{1}{2}$ " "	Defacement	20 00
.....	439	24 "	$4\frac{1}{2}$ " "	$2\frac{1}{2}$ " "	Defiance	23 00
.....	439	30 "	$4\frac{1}{2}$ " "	$2\frac{1}{2}$ " "	Defraying	25 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

DEEP WELL WORKING HEADS

WITH FLANGED BASE

Fig. 432—With Wind Mill Top

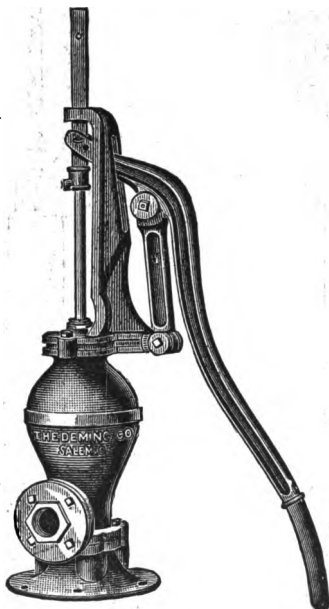


Fig. 433—With Pitman for Power



The above Force Pump Working Heads are the same in general construction; Fig. 432 is arranged for Wind Mill or Hand use, and Fig. 433 has, instead of a Wind Mill attachment, a Pitman, adapting it for any kind of Power.

These Working Heads may be used in connection with a Cylinder, in places where a large Staudard would be impracticable.

A Flange is placed between the Base and the Air Chamber, and may be threaded for any size Suction Pipe up to three inches. Forked Couplings for connecting to Wood Rods are furnished at an additional cost as given below. They are always fitted for $\frac{1}{2}$ inch rod, unless otherwise ordered, but can be fitted for $\frac{3}{8}$ or $\frac{1}{4}$ inch Gas Pipe for Pumping Rod.

Cylinders or Working Barrels for use with these Working Heads are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig.	*Suction Fitted for	*Discharge Fitted for	WITH 6 INCH STROKE		WITH 10 INCH STROKE	
			Cipher	Price	Cipher	Price
432	1½ Inch Pipe	1½ Inch Pipe	Debonair	13 00	Decade	14 50
433	1½ " "	1½ " "	Debutant	15 00	Decadence	16 50

* Fitted for 1, 1½, 2, 2½ or 3 inch Suction or Discharge Pipe, but always as listed, unless otherwise ordered. Forked Rod Coupling for connecting to Wood Rod furnished at \$1.50 extra list.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

SYPHON FORCE PUMPS

WITH SUBMERGED CYLINDERS

Fig. 321.

Fig. 320.

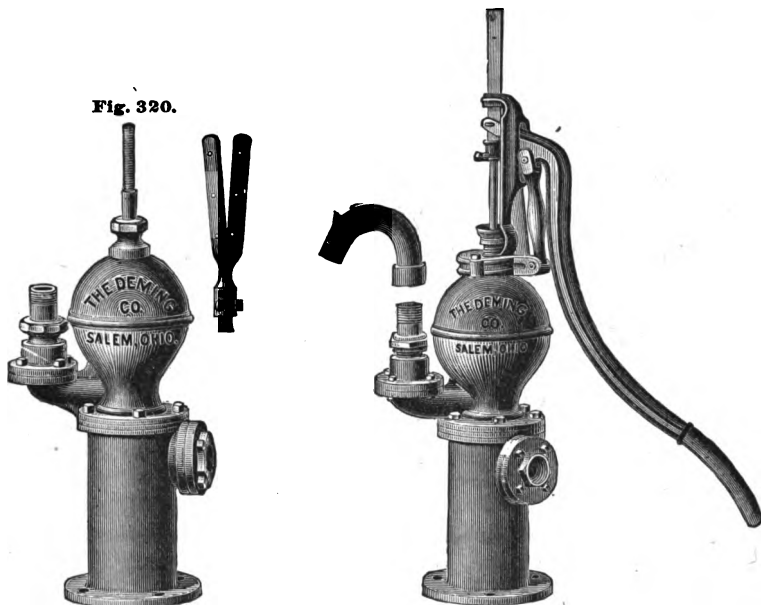


Fig. 320, Submerged Cylinder Pump, for use in places where it can be located within twenty-five feet of the water, has been for years a favorite. It is always primed, therefore will draw water a longer distance than ordinary pumps. It must be protected from frost. The piston-rod is arranged for power, and a forked coupling for attaching to a wind mill wood rod is also furnished.

Fig. 321 is identical with **Fig. 320**, except that it has wind mill top and lever for hand use. The goose neck spout, shown detached from pump, will be furnished at an extra list price of \$1.00 for Nos. 1 to 4.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

SPECIFICATION OF SIZES				FIG. 320, BRASS-LINED CYL.		FIG. 321, BRASS-LINED CYL.	
Size Cyl.	Stroke	Suction	Discharge	Cipher	Price	Cipher	Price
2½ inch	8 inch	1¼ in. Pipe	1¼ in. Pipe	Decker	25 00	Decrease	28 50
3 "	8 "	1½ "	1½ "	Declaim	27 50	Decrepit	31 00
3½ "	10 "	2 "	2 "	Declaimer	32 50	Decried	37 50
4 "	10 "	2 "	2 "	Declared	40 00	Dedicate	45 00
5 "	12 "	2½ "	2½ "	Declension	55 00	Deduced	62 50
6 "	12 "	3 "	3 "	Declinable	75 00	Deeded	82 50

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

IMPROVED SYPHON FORCE PUMP

WITH REMOVABLE VALVES, BRASS CYLINDER AND BRASS PISTON-ROD

Fig. 385



FOR POWER

Our Syphon Pumps are so constructed that the Cylinder and Valves are at all times immersed and consequently always primed.

The Valve Box Cap and lower Valve can be removed without interfering with Pipe Connections.

The Plunger may also be removed by taking off the Stuffing-box Cap. It is furnished, as shown in cut of Pump, or with Swivel Forked Coupling (as shown in small cut) instead, when so ordered.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Size Cyl.	Suction and Discharge Fitted for Pipe	8 in. Stroke		10 in. Stroke		12 in. Stroke		16 in. Stroke	
		Cipher	Price	Cipher	Price	Cipher	Price	Cipher	Price
2½ in.	1½ in.	Denizen	25 00	Deprave	27 50	Despotic	30 00	.....	.....
3 "	1½ "	Dentistry	27 50	Depravity	30 00	Destroyer	32 50	.....	.....
3½ "	2 "	.....	.....	Deponent	37 50	Deltoid	40 00	.....	.....
4 "	2 "	.....	.....	Depriving	42 50	Datary	45 00	.....	.....
5 "	2½ "	.....	.....	.....	.....	Decagon	65 00	Decisory	80 00
6 "	3 "	.....	.....	.....	.....	Decalcify	85 00	Decoy	105 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED SYPHON FORCE PUMP

WITH REMOVABLE VALVES, BRASS CYLINDER AND BRASS PISTON-ROD

Fig. 386



FOR HAND OR POWER

Fig. 386. In construction is the same as Fig. 385. The Cylinder and Valves are at all times immersed and consequently always primed. The Valve Box Cap and Lower Valve can be removed without interfering with Pipe connections. The Plunger may also be removed by taking off the Stuffing Box Cap.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Size Cyl.	Suction and Discharge Fitted for	6 INCH STROKE		10 INCH STROKE		12 INCH STROKE	
		Cipher	Price	Cipher	Price	Cipher	Price
2½ inch	1½ inch Pipe	Decretion	28 50	Dacapo	31 00	.....	.....
3 " "	1½ " "	Decrown	31 00	Dacolt	33 50	.....	.....
3½ " "	2 " "	.....	.....	Decury	42 50	.....	.....
4 " "	2 " "	.....	.....	Defecate	47 50	.....	.....
5 " "	2½ " "	.....	.....	.....	.....	Delirant	75 00
6 " "	3 " "	.....	.....	.....	.....	Delphian	95 00

Goose Neck Spouts for Pumps with 2½ to 4 inch Cylinders furnished at \$1.00, extra list.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

CYLINDERS OR WORKING BARRELS

The Cylinder or working section of a Pump is that part which does the actual work of pumping and if the Cylinder is in any way defective, the Pump will not work successfully. We manufacture the most complete line of Cylinders in the United States, which are illustrated and listed on the following pages. In our factory we take especial pains in the construction of Cylinders. All parts being made to exact gauges, repairs will always fit. To insure this, a careful inspection of all Cylinders is made before they are shipped from the factory. Our Iron and Brass Cylinders are all bored out perfectly true, and are highly polished. The Brass Tube Cylinders are made of heavy seamless Brass Tubing, with Iron or Brass attachments; and for accuracy in construction and ease of operation, they cannot be excelled.

Our Brass-Lined Cylinders are made similar to the Iron Cylinders, the shell being bored out smoothly and enough to insert a lining of Brass Tubing of the proper inside diameter. The lining is forced in and swaged to position. These Cylinders possess the smoothness of the Brass Tube Cylinders and are not so likely to become injured by external pressure. The lists on the following pages give the sizes of pipe the Cylinders are fitted for; but if other sizes of pipe are to be used we can generally fit the Cylinder attachments to suit; however, we recommend the Cylinders to be fitted as listed, since practical usage has demonstrated them to be best adapted for sizes of pipe as given in the lists.

The following are the necessary parts of a Cylinder or Working Barrel, viz: Body or Shell, Top Attachment, Bottom Attachment, Plunger (Cage, Poppet Valve, Follower and Leather Packing) and the Lower Valve. In order that the Pump operate properly, these parts must be in perfect condition and the joints of the Cylinder should be air-tight.

PLUNGERS FOR CYLINDERS

The various styles of Plungers used in our Cylinders are shown in connection with the Cylinders on the next few pages.

"A" Plunger has one leather packing, made as follows: All Iron; Iron Follower, Brass Cage and Valve; all Brass.

"C" Plunger is all Brass, with one cupped leather packing and with water grooved Follower. Used in Fig. 315 Metallic Valve Cylinder.

"J" Plunger has two leather packings, made as follows: All Iron; Iron Follower, Brass Cage and Valve; all Brass.

"L" Plunger has Brass Cage and Valve and three cupped leather packings. The regular "L" Plunger has Iron Follower but is furnished all Brass when so ordered.

For Open Wells we recommend Cylinders with outside attachments; and for Drilled Wells, Cylinders with inside attachments when size of well will not admit Cylinders with outside attachments.

TABLE SHOWING OUTSIDE DIAMETER OF CYLINDERS

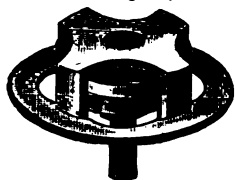
INSIDE DIAMETER IN INCHES	1½	1½	1½	2	2½	2½	2½	3	3½	3½	3½	4	4½	4½	4½	5	5½	6
OUTSIDE DIAMETERS																		
Figs. 300, 302 and 304				3	3½	3½	4	4½	4½	4½	5	5½	6	6	7½	7½	7½	7½
" 303 and 305				2½	3	3½	3½	4	4½	4½	5	5½	6	6	7½	7½	7½	7½
" 306, 309 and 310				3	3½	3½	4	4½	4½	4½	5	5½	6	6	7½	7½	7½	7½
Fig. 312				2½	3	3½	3½	4	4½	4½	5	5½	6	6	7½	7½	7½	7½
" 322		1½	2	2½	2½	2½	3	3½	3½	4	4½	4½	5	5	6	6	6	6
" 315				2½	2½	2½	3	3½	3½	4	4½	4½	5	5	6	6	6	6
" 324	2½		3½		3½		4	4½	4½	5	5	5½	6	6	7½	7½	7½	7½
" 311			2½		3		3½	4	4½	4½	5	5½	6	6	7½	7½	7½	7½
" 318								4½	4½	4½	5	5½	6	6	7½	7½	7½	7½
" 319					9			11½				13						17

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

SPECIAL LOWER CYLINDER VALVE

FOR OUTSIDE ATTACHMENT CYLINDERS

WESTERN STYLE

Fig. 835—Cipher, *Caloric*

The annexed cut represents our new Lower Valve for Iron, Brass-lined and Brass Tube Cylinders with Outside Attachments, Figs. 802, 804, 808, 809, 810 and 812, illustrated and listed elsewhere. Any of the above cylinders are furnished with Fig. 835 when so ordered at the extra lists given below.

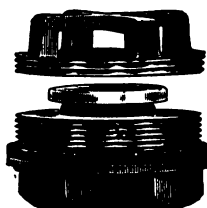
When Outside Attachment Cylinders are wanted with Fig. 835 Valve, add the word "Caloric" to the cipher word for the cylinder.

SIZES AND PRICES

Size in inches (Diam. Cyl.)	2	2¼	2½	2¾	3	3¼	3½	4	4½	5	6
Extra list added to Cyl. list	.50	.50	.50	.50	.50	.60	.60	.75	.75	1.00	1.25

SPECIAL LOWER CAP AND CYLINDER VALVE

FOR INSIDE ATTACHMENT CYLINDERS

Fig. 358—Cipher, *Camelot*

(Patent Pending.)

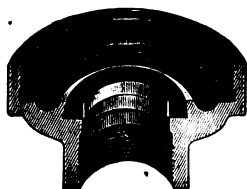
The annexed cut represents our new Lower Cap and Valve, Fig. 358. It is made both of iron and brass, and with *Patent Rubber Valve Seat*. The all brass cap has brass cage and valve.

Our Inside Attachment Cylinders, both Iron and Brass Tube, Figs. 808, 805 and 822, listed elsewhere, will be fitted with this new attachment without additional coat.

SIZES AND PRICES

Size in inches (Diam. Cyl.)	2	2¼	2½	2¾	3	3¼	3½	4	4½	5	6
Bottom Attachment and Valve—Iron Caps	1 25	1 25	1 25	1 50	1 50	1 75	1 75	2 50	3 25	4 00	5 00
Bottom Attachment and Valve—All Brass	2 50	2 75	3 00	3 50	3 75	4 50	5 00	6 00	7 00	9 50	12 00

PATENT RUBBER VALVE SEAT



The sectional cut annexed shows our Patent Rubber Valve Seat, and the method of fastening it in the Cylinder Cap. This has solved the troublesome valve seat problem. A dealer may now sell pumps knowing they will stay sold, as priming is unnecessary. Furnished with Set Length Pumps and with some Independent Cylinders without extra charge, also with Brass Cylinder Pitcher Pump Fig. 101 and Cistern Force Pumps Figs. 514, 515, 518, 519, 540 and 544. Pitcher Pumps Figs. 125, 126, 129, 135 and 186 furnished with Patent Rubber Valve Seat when ordered, at extra charge.

Cylinders with Rubber Valve Seat are listed on four following pages.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

IMPROVED IRON CYLINDERS OR WORKING BARRELS

Fig. 300**Figs. 300 and 301 with "A" Plunger**

Size	Stroke	Fitted for Pipe	Cipher	Price
2 x10	6 inch	1 inch	Cabal	8 75
2½ x10	6 "	1½ "	Cabalist	4 00
2¾ x10	6 "	1¾ "	Cabalize	4 35
3 x10	6 "	1½ "	Caballer	4 70
3½ x10	6 "	1½ "	Cabaret	5 00
3¾ x10	6 "	1½ "	Cabas	6 00
4 x10	6 "	2 "	Cabbage	7 00
			Cabin	9 00

N. B.—The Cipher words apply to Fig. 300; when Fig. 301 is wanted, add the word "Bolted" to the Cipher word.

Figs. 302 and 303 with "J" Plunger

Size	Stroke	Fitted for Pipe	* Cipher	Price
2 x12	8 inch	1 inch	Calamiue	5 50
2½ x12	8 "	1½ "	Calamist	5 75
2¾ x12	8 "	1¾ "	Calamite	6 00
3 x12	8 "	1½ "	Calamity	6 50
3½ x12	8 "	1½ "	Calamus	7 00
3¾ x12	8 "	1½ "	Calash	8 00
4 x12	8 "	2 "	Calcar	9 00
2 x14	10 "	1 "	Calclform	11 50
2½ x14	10 "	1½ "	Calcify	6 00
2¾ x14	10 "	1¾ "	Calcinate	6 25
3 x14	10 "	1½ "	Calcine	6 50
3½ x14	10 "	1½ "	Caicite	7 00
3¾ x14	10 "	1½ "	Calcium	7 50
4 x14	10 "	2 "	Calculate	8 75
4½ x14	10 "	2 ½ "	Calculus	10 00
5 x14	10 "	2 ½ "	Calefy	13 00
			Calendar	17 50
			Calenture	22 50

Strokes given are for Fig. 302. Fig. 303, 12 in. long, has 6 in. stroke; 14 in. long, 7 in. stroke.

Figs. 304 and 305 with "J" Plunger

Size	Stroke	Fitted for Pipe	* Cipher	Price
2 x16	12 inch	1 inch	Captain	6 00
2½ x16	12 "	1½ "	Captious	6 50
2¾ x16	12 "	1¾ "	Captive	7 00
3 x16	12 "	1½ "	Capuchin	7 50
3½ x16	12 "	1½ "	Capulet	8 00
3¾ x16	12 "	1½ "	Caramel	9 75
4 x16	12 "	2 "	Carat	11 25
4½ x16	12 "	2 "	Carbine	14 50
5 x16	12 "	2 ½ "	Carbon	18 50
6 x16	12 "	3 "	Carbonic	25 00
			Carbuncle	37 50

Strokes given are for Fig. 304. Fig. 305 has 9 in. stroke.

Cylinders Figs. 300, 301, 302 and 304 are fitted with Leather Lower Valve unless otherwise ordered.

Cylinders Figs. 303 and 305 are fitted with Special Lower Cap and Valve, Fig. 358.

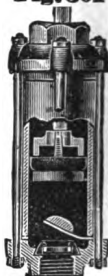
* The cipher words given above apply to Cylinders with outside attachments; when wanted with inside attachments, add the word "Inside" to the cipher word.

Fitted for Pipe as listed unless otherwise ordered.

N. B.—Outside Diameters of all styles and sizes of Cylinders are given on another page.

The above Cylinders are provided with patent Rubber Valve Seat

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

Fig. 301**Fig. 303****Fig. 305**

IMPROVED BRASS-LINED IRON CYLINDERS

Fig. 308



FOR SHALLOW AND DEEP WELLS

Fig. 308, with "A" Plunger

Size	Stroke	Fitted for Pipe	IRON PLUNGER		IRON FOLLOWER BRASS CAGE & VALVE	
			Cipher	Price	Cipher	Price
2 x10	6 inch	1 inch	Catacomb	6 75	Cabriole	7 50
2 1/4 x10	6 "	1 1/4 "	Catamaran	7 00	Cachalot	7 75
2 1/2 x10	6 "	1 1/2 "	Catapult	7 25	Cachiri	8 00
2 3/4 x10	6 "	1 3/4 "	Cataract	7 50	Cacholong	8 50
3 x10	6 "	1 1/2 "	Catawba	7 75	Cachunde	9 00
3 1/4 x10	6 "	1 1/4 "	Catcher	8 25	Cackarel	9 75
3 1/2 x10	6 "	1 1/2 "	Catsup	8 75	Cadastral	10 50
4 x10	6 "	2 "	Catechise	10 50	Cadaver	13 00

Fig. 309



Fig. 309, with "J" Plunger

Size	Stroke	Fitted for Pipe	IRON PLUNGER		IRON FOLLOWER BRASS CAGE & VALVE	
			Cipher	Price	Cipher	Price
2 x12	8 inch	1 inch	Cadaverous	7 25	Cautious	8 00
2 1/4 x12	8 "	1 1/4 "	Caddow	7 50	Cavalcade	8 25
2 1/2 x12	8 "	1 1/2 "	Cadence	7 75	Cavalier	8 50
2 3/4 x12	8 "	1 3/4 "	Cadger	8 00	Cavalry	9 00
3 x12	8 "	1 1/2 "	Cadmean	8 25	Cavern	9 50
3 1/4 x12	8 "	1 1/4 "	Cadmus	8 75	Cavil	10 25
3 1/2 x12	8 "	1 1/2 "	Caduke	9 50	Cavilling	11 25
4 x12	8 "	2 "	Cafenet	11 75	Cavity	14 25
2 x14	10 "	1 "	Caffeine	7 75	Cayenne	8 50
2 1/4 x14	10 "	1 1/4 "	Caffre	8 25	Cedar	9 00
2 1/2 x14	10 "	1 1/2 "	Caftan	8 50	Cedilla	9 25
2 3/4 x14	10 "	1 3/4 "	Cagit	8 75	Celerity	9 75
3 x14	10 "	1 1/2 "	Cagmag	9 00	Celery	10 25
3 1/4 x14	10 "	1 1/4 "	Cahoot	9 50	Celestial	11 00
3 1/2 x14	10 "	1 1/2 "	Caked	10 50	Celibate	12 25
4 x14	10 "	2 "	Caking	13 25	Celibacy	15 75
5 x14	10 "	2 1/2 "	Calaboose	29 00	Camomile	33 00
6 x14	10 "	3 "	Calade	45 00	Castilian	50 00

Fig. 310



Fig. 310, with "J" Plunger

Size	Stroke	Fitted for Pipe	IRON PLUNGER		IRON FOLLOWER BRASS CAGE & VALVE	
			Cipher	Price	Cipher	Price
2 x16	12 inch	1 inch	Calamar	8 25	Certificate	9 00
2 1/4 x16	12 "	1 1/4 "	Calando	9 00	Cessation	9 75
2 1/2 x16	12 "	1 1/2 "	Calangay	9 50	Cestus	10 25
2 3/4 x16	12 "	1 3/4 "	Caliber	9 75	Chaffer	10 75
3 x16	12 "	1 1/2 "	Calibrate	10 00	Chagrin	11 25
3 1/4 x16	12 "	1 1/4 "	Calid	10 50	Chairman	12 00
3 1/2 x16	12 "	1 1/2 "	Caliduct	11 75	Chaise	13 50
4 x16	12 "	2 "	Calipers	15 00	Chaldean	17 50
5 x16	12 "	2 1/2 "	Calker	31 00	Capsicum	35 00
6 x16	12 "	3 "	Calking	50 00	Capricorn	55 00

The above Cylinders are fitted with Leather Lower Valve and are fitted for Pipe as listed, unless otherwise ordered.

N. B.—Outside Diameters of all styles and Sizes of Cylinders are given on another page.

The above Cylinders are provided with Patent Rubber Valve Seat

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

Fig. 312



Fig. 312



Fig. 312



SEAMLESS BRASS TUBE CYLINDERS FOR SHALLOW AND DEEP WELLS

Figs. 312 and 322, 10 and 12 inches long, with "A" Plunger

Size	Stroke	Fitted for Pipe	Iron Caps Iron Plgr.		Iron Caps Br. Plgr.		All Brass	
			*Cipher	Price	*Cipher	Price	*Cipher	Price
2 x10	7 in.	1 in.	Chaffing	6 75	Chaos	8 00	Chasten	10 75
2 1/4 x10	7 "	1 1/4 "	Chained	7 00	Chaotic	8 25	Chastise	11 00
2 1/2 x10	7 "	1 1/2 "	Chaining	7 25	Chapeau	8 50	Chatter	12 25
2 3/4 x10	7 "	1 3/4 "	Chalked	7 50	Chapel	9 00	Cheater	12 75
3 x10	7 "	1 1/2 "	Chalking	7 75	Chaplet	9 75	Checkers	13 50
3 1/4 x10	7 "	1 1/4 "	Challis	8 25	Chaperon	10 50	Cheek	14 75
3 1/2 x10	7 "	1 1/2 "	Chamade	8 75	Chaplain	11 50	Cheese	16 75
4 x10	7 "	2 "	Champed	10 50	Character	15 50	Chemist	21 50
2 x12	9 "	1 "	Chandry	7 25	Charade	9 25	Chemistry	11 25
2 1/4 x12	9 "	1 1/4 "	Chappy	7 50	Charger	9 50	Cherish	11 50
2 1/2 x12	9 "	1 1/2 "	Chapter	7 75	Chariot	9 75	Cherry	12 75
2 3/4 x12	9 "	1 3/4 "	Chary	8 00	Charity	10 50	Cherub	13 25
3 x12	9 "	1 1/2 "	Chasing	8 25	Charlatan	11 00	Chess	14 00
3 1/4 x12	9 "	1 1/4 "	Chasm	8 75	Charmar	12 00	Chestnut	15 25
3 1/2 x12	9 "	1 1/2 "	Chaser	9 50	Charon	13 75	Chicane	17 50
4 x12	9 "	2 "	Chateau	11 75	Chartered	18 00	Chicory	22 50

N. B.—Fig. 322, 12 in. long, has 6 in. stroke.

Figs. 312 and 322, 14 inches long, with "J" Plunger

Size	Fitted for Pipe	Iron Attachments and Follower Brass Cage and Valve		Iron Attachments and all Brass Plunger		All Brass	
		*Cipher	Price	*Cipher	Price	*Cipher	Price
2 x14	1 in.	Chiefly	8 50	Chivalry	9 75	Christen	13 00
2 1/4 x14	1 1/4 "	Chieftain	9 00	Chloral	10 25	Christian	13 50
2 1/2 x14	1 1/2 "	Childish	9 25	Chloride	10 50	Christmas	14 75
2 3/4 x14	1 3/4 "	Childless	9 75	Chocolate	11 25	Chromatic	15 50
3 x14	1 1/2 "	Chilly	10 25	Choker	11 75	Chronic	16 25
3 1/4 x14	1 1/4 "	Chimney	11 00	Cholera	12 75	Chronicle	17 75
3 1/2 x14	1 1/2 "	Chinese	12 25	Chosen	14 75	Chrysalis	21 00
4 x14	2 "	Chintz	15 75	Chopper	19 00	Chunky	26 50

N. B.—Fig. 312, 14 in. long, has 10 in. stroke. Fig. 322, 7 in. stroke.

Figs. 312 and 322, 16 inches long, with "J" Plunger

Size	Fitted for Pipe	Iron Attachments and Follower Brass Cage and Valve		Iron Attachments and all Brass Plunger		All Brass	
		*Cipher	Price	*Cipher	Price	*Cipher	Price
1 1/2 x16	1 in.	.....	.....	.....	.....	Claret	13 75
2 x16	1 "	Churned	9 00	Circumv. at	10 50	Clarify	13 75
2 1/4 x16	1 1/4 "	Churning	9 75	Citadel	11 25	Clarion	14 50
2 1/2 x16	1 1/2 "	Cicerone	10 25	Citation	11 75	Clarionet	16 00
2 3/4 x16	1 3/4 "	Cider	10 75	Citizen	12 25	Clasped	16 50
3 x16	1 1/2 "	Cigar	11 25	Citron	12 75	Classic	17 25
3 1/4 x16	1 1/4 "	Cinchona	12 00	Civilian	14 00	Classify	19 00
3 1/2 x16	1 1/2 "	Cinder	13 50	Civility	16 00	Clatter	22 25
4 x16	2 "	Cinnamon	17 50	Claimant	20 50	Cleanly	28 00
4 1/4 x16	2 1/4 "	Circuit	25 00	Caimar	30 50	Clearing	38 75
5 x17	2 1/2 "	Circulate	35 00	Clammy	42 00	Cleavage	53 50
6 x17	3 "	Circumflex	55 00	Clammy	62 00	Clematis	75 00

N. B.—Fig. 312, 16 in. long, has 12 in. stroke. Fig. 322, 9 in. stroke.

Cylinders Fig. 312, are fitted with Leather Lower Valve unless otherwise ordered. Cylinders Fig. 322, are fitted with Special Lower Cap and Valve, Fig. 358. Fitted for Pipe as listed, unless otherwise ordered.

*The cipher words given above apply to Fig. 312; when Fig. 322 is wanted add the word "Inside" to the cipher word.

N. B.—Outside diameters of all styles and sizes of Cylinders are given on another page.

Above Cylinders with Iron Caps have Patent Rubber Valve Seat

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

SEAMLESS BRASS TUBE CYLINDERS

FOR DEEP WELLS

Fig. 312

Figs. 312 and 322, 18, 20 and 22 Inches long, with "L" Plunger

Fig. 322



Size	Pipe Size	Iron Attachments and Follower Brass Cage and Valve		Iron Attachments and All Brass Plunger		All Brass	
		*Cipher	Price	*Cipher	Price	*Cipher	Price
1½ x 18	1 in	.....	.....	.....	.....	Continuous	14 25
1¾ x 18	1 in	.....	.....	.....	.....	Contorted	14 25
2 x 18	1 in	Commotion	9 50	Consuming	11 00	Contortion	14 25
2¼ x 18	1½ in	Communist	10 50	Consumptive	12 00	Contour	15 25
2½ x 18	1½ in	Community	11 25	Contact	12 75	Contraband	17 00
2¾ x 18	1½ in	Commutable	11 75	Contagion	13 25	Contraction	17 50
3 x 18	1½ in	Commute	12 25	Contain	13 75	Contradict	18 25
3¼ x 18	1½ in	Companion	13 00	Contained	15 00	Contradicted	20 00
3½ x 18	1½ in	Compare	14 75	Containing	17 25	Contralto	23 50
4 x 18	2 in	Comparing	19 25	Contempt	22 25	Contrarily	29 75
1½ x 20	1 in	.....	.....	.....	.....	Contrary	14 75
1¾ x 20	1 in	.....	.....	.....	.....	Contrast	14 75
2 x 20	1 in	Commodore	10 00	Contending	11 50	Contrasted	14 75
2¼ x 20	1½ in	Constrain	11 25	Contention	12 75	Contrasting	16 00
2½ x 20	1½ in	Constrained	12 25	Contest	13 50	Contribute	17 75
2¾ x 20	1½ in	Constraining	12 75	Contestant	14 25	Contributor	18 50
3 x 20	1½ in	Construct	13 25	Context	14 75	Critrite	19 25
3¼ x 20	1½ in	Construct	14 00	Contiguous	16 00	Contribution	21 00
3½ x 20	1½ in	Construe	16 25	Continence	19 00	Contrivance	25 25
4 x 20	2 in	Consular	21 00	Continue	24 00	Contriving	31 50
4½ x 22	2½ in	Consulate	34 00	Contingency	39 50	Control	47 75
5 x 22	3 in	Consulted	45 00	Contingent	52 00	Controlling	63 50



N. B.—Fig. 312, 18 in. long, has 13 in. stroke; 20 in. long, 15 in. stroke; 22 in. long, 16 in. stroke. Fig. 322, 18 in. long, has 10 in. stroke; 20 in. long, 12 in. stroke; 22 in. long, 13 in. stroke.

Cylinders Fig. 312, are fitted with Leather Lower Valve unless otherwise ordered.

Cylinders Fig. 322, are fitted with Special Lower Cap and Valve, Fig. 358.

*The cipher words given above apply to Fig. 312; when Fig. 322 is wanted add the word "Inside" to the cipher word. Fitted for Pipe as listed, unless otherwise ordered.

Above Cylinders with Iron Caps have Patent Rubber Valve Seat

Fig. 315 SPECIAL DEEP WELL BRASS CYLINDER WITH METALLIC VALVES

Fig. 315, 16, 20 and 30 Inches long, with All Brass "C" Plunger

These Cylinders are made of heavy seamless-drawn Brass Tubing, and are Metallic fitted throughout, making them especially adapted for deep wells that contain alkali and other substances that would affect iron or leather. They are suitable for Deep Wells and Mines, and can be used in connection with our Power Working Heads of same stroke. The cut shows Cylinder with Inside Attachments for Drilled Wells. We can furnish them with outside attachments or caps, if preferred. Always furnished with Inside Attachments, unless otherwise ordered.

SIZES AND PRICES

Sizes	Fitted for Pipe	Length of Stroke	Capacity per Stroke	Cipher	Price	Size	Fitted for Pipe	Length of Stroke	Capacity per Stroke	Cipher	Price
2 x 16	1 in	8	.11	Clemency	13 00	3½ x 20	1½ in	10	.42	Clipping	24 00
2½ x 16	1½ in	8	.17	Clergy	14 50	4 x 20	2 in	10	.54	Cloddy	31 00
3 x 16	1½ in	8	.24	Clergyman	16 50	4½ x 20	2 in	10	.69	Cloister	40 00
3½ x 16	1½ in	8	.33	Clerical	20 00	5 x 20	2½ in	10	.85	Closely	50 00
4 x 16	2 in	8	.44	Clerkship	26 00	5½ x 30	1½ in	16	.49	Closed	50 00
4½ x 16	2 in	8	.55	Cleverly	33 00	6 x 30	2 in	16	.67	Clothier	55 00
5 x 16	2½ in	8	.68	Climate	40 00	4 x 30	2 in	16	.87	Cloudless	60 00
2 x 20	1 in	10	.14	Climatic	16 00	4½ x 30	2½ in	16	1.02	Clover	67 50
2½ x 20	1½ in	10	.21	Climber	17 50	5 x 30	3 in	16	1.36	Clown	75 00
3 x 20	1½ in	10	.31	Clinic	20 00	6 x 30	3 in	16	1.96	Clumsy	90 00

Fitted for Pipe as listed, unless otherwise ordered.

N. B.—Outside Diameters of all styles and sizes of Cylinders are given on another page.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

IMPROVED

ARTESIAN WELL BRASS CYLINDERS

WITH BRONZE BALL VALVES

Fig. 324

Fig. 324 Cylinder or Working Barrel is made of Brass, with Plunger having cupped leather packings. The Cylinder is fitted for Pipe one size larger than its diameter to admit of withdrawing together the Plunger and Lower Valve when repairs become necessary. These Working Barrels are designed for service with our Power Working Heads and Steam Pumping Engines. The smaller sizes may be used with our Heavy Hand and Wind Mill Standards when desired. To give the best results, the Cylinder should be submerged. Bottom Coupling is fitted for Suction Pipe or strainer. They are extensively used in drilled wells. **Fig. 324** Cylinders or Working Barrels are adapted to the deepest wells, and in many cases are successfully operated in wells over 1,000 feet in depth. In ordering **Fig. 324** Cylinders, always give the inside diameter and length of Stroke. Unless specially ordered for Artesian Well Casing, the top and bottom attachments will always be fitted for Standard Pipe as listed in table below.

SIZES AND PRICES

Inside Diameter of Cyl.	Length of Stroke	Pipe or Casing for Top Attachments	Pipe or Casing for Bottom Attachments	Extreme Length of Cyl.	Extreme Outside Diameter	Stem of Plunger Fitted for Pipe	Capacity in Gallons per Stroke	CYL. COMPLETE	
								Clipher	Price
1 1/2 in.	16 in.	1 1/2 in.	1 1/2 in.	32 1/2 in.	2 3/4 in.	3 1/2 in.	.10	Collator	16 00
1 3/4 in.	16 in.	2 in.	2 in.	32 1/2 in.	3 1/4 in.	3 1/2 in.	.17	Colleague	19 00
2 in.	16 in.	2 1/2 in.	2 in.	35 in.	3 3/4 in.	3 1/2 in.	.27	Collegian	28 00
2 1/4 in.	16 in.	3 in.	2 in.	42 in.	4 in.	3 1/2 in.	.41	Collide	36 00
2 3/4 in.	16 in.	3 1/2 in.	2 1/2 in.	43 in.	4 1/2 in.	1 in.	.57	Colliery	48 00
3 in.	16 in.	4 in.	3 in.	45 in.	5 in.	1 in.	.77	Collective	70 00
3 1/4 in.	24 in.	3 in.	2 in.	50 in.	4 in.	3/4 in.	.61	Collision	38 00
3 1/2 in.	24 in.	3 1/2 in.	2 1/2 in.	51 in.	4 1/2 in.	1 in.	.86	Collude	52 00
3 3/4 in.	24 in.	4 in.	3 in.	53 in.	5 in.	1 in.	1.15	Collusion	75 00
4 in.	24 in.	4 1/2 in.	3 in.	54 1/2 in.	5 1/2 in.	1 1/4 in.	1.47	Cologne	95 00
4 1/4 in.	24 in.	5 in.	3 in.	56 1/2 in.	6 in.	1 1/4 in.	1.84	Colonial	135 00
4 1/2 in.	24 in.	5 1/2 in.	3 1/2 in.	57 1/2 in.	6 1/2 in.	1 1/2 in.	2.25	Columbian	160 00
5 in.	24 in.	6 in.	3 1/2 in.	57 1/2 in.	7 in.	1 1/2 in.	2.70	Combatant	195 00
5 1/4 in.	24 in.	6 1/2 in.	4 in.	60 1/2 in.	8 in.	1 1/2 in.	3.19	Combater	250 00
5 1/2 in.	24 in.	7 in.	4 in.	61 1/2 in.	8 1/2 in.	1 1/2 in.	3.72	Combine	300 00
6 in.	24 in.	8 in.	4 1/2 in.	72 in.	9 in.	1 1/2 in.	4.90	Comforted	450 00
6 1/4 in.	24 in.	9 in.	5 in.	72 in.	11 in.	2 in.	5.90	Comic	725 00
6 1/2 in.	24 in.	10 in.	6 in.	72 in.	12 in.	2 in.	7.36	Comicality	915 00
6 3/4 in.	30 in.	3 in.	2 1/2 in.	56 in.	4 in.	3/4 in.	.77	Columbine	40 00
7 in.	30 in.	3 1/2 in.	2 in.	57 in.	4 1/2 in.	1 in.	1.08	Comatose	55 00
7 1/4 in.	30 in.	4 in.	3 in.	59 in.	5 in.	1 in.	1.43	Combat	80 00
7 1/2 in.	30 in.	4 1/2 in.	3 in.	60 1/2 in.	5 1/2 in.	1 1/4 in.	1.84	Combined	100 00
7 3/4 in.	30 in.	5 in.	3 in.	62 1/2 in.	6 in.	1 1/2 in.	2.30	Combing	142 50
8 in.	30 in.	5 1/2 in.	3 1/2 in.	63 1/2 in.	6 1/2 in.	1 1/2 in.	2.81	Commanding	170 00
8 1/4 in.	30 in.	6 in.	3 1/2 in.	63 1/2 in.	7 in.	1 1/2 in.	3.38	Comedian	207 50
8 1/2 in.	30 in.	6 1/2 in.	4 in.	66 1/2 in.	8 in.	1 1/2 in.	3.99	Commented	280 00
8 3/4 in.	30 in.	7 in.	4 in.	67 1/2 in.	8 1/2 in.	1 1/2 in.	4.65	Commenting	320 00
9 in.	30 in.	8 in.	4 1/2 in.	78 in.	9 in.	1 1/2 in.	6.12	Committed	480 00
9 1/4 in.	30 in.	9 in.	5 in.	78 in.	11 in.	2 in.	7.33	Common	775 00
9 1/2 in.	30 in.	10 in.	6 in.	78 in.	12 in.	2 in.	9.20	Commune	955 00
9 3/4 in.	36 in.	3 1/2 in.	2 1/2 in.	63 in.	4 1/2 in.	1 in.	1.29	Comedy	58 00
10 in.	36 in.	4 in.	3 in.	65 in.	5 in.	1 in.	1.72	Comfort	85 00
10 1/4 in.	36 in.	4 1/2 in.	3 in.	66 1/2 in.	5 1/2 in.	1 1/4 in.	2.21	Comical	105 00
10 1/2 in.	36 in.	5 in.	3 in.	68 1/2 in.	6 in.	1 1/2 in.	2.76	Comma	150 00
10 3/4 in.	36 in.	5 1/2 in.	3 1/2 in.	69 1/2 in.	6 1/2 in.	1 1/2 in.	3.37	Communing	190 00
11 in.	36 in.	6 in.	3 1/2 in.	69 1/2 in.	7 in.	1 1/2 in.	4.06	Commander	217 50
11 1/4 in.	36 in.	6 1/2 in.	4 in.	72 1/2 in.	8 in.	1 1/2 in.	4.78	Compared	275 00
11 1/2 in.	36 in.	7 in.	4 in.	73 1/2 in.	8 1/2 in.	1 1/2 in.	5.58	Comparative	335 00
11 3/4 in.	36 in.	8 in.	4 1/2 in.	84 in.	9 in.	1 1/2 in.	7.36	Construed	500 00
12 in.	36 in.	9 in.	5 in.	84 in.	11 in.	2 in.	8.79	Constructed	825 00
12 1/4 in.	36 in.	10 in.	6 in.	84 in.	12 in.	2 in.	11.04	Constructing	1000 00

- * The 5 1/4 inch Cylinders, when ordered for casing, are fitted for 5 1/2 inch at top attachment.
- † The 6 1/2 inch Cylinders, when ordered for casing, are fitted for 6 1/2 inch at top attachment.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

Fig. 374-A



Fig. 374-B



OIL AND ARTESIAN WELL VALVES

Fig. 374

SIZES AND PRICES

Diam. Cylinder	Price Plunger A	Price Lower Valve-B	Price per set.	Diam. Cylinder	Price Plunger A	Price Lower Valve-B	Price per set.
1 1/2	2 75	2 00	4 75	5 1/2	40 00	27 00	67 00
1 3/4	4 00	3 00	7 00	5 3/4	48 00	34 00	82 00
2 1/4	6 50	4 75	11 25	6 1/4	65 00	45 00	110 00
2 3/4	12 00	8 00	20 00	6 3/4	78 00	56 00	134 00
3 1/4	17 00	12 00	29 00	7 1/4	150 00	100 00	250 00
3 3/4	22 00	14 00	36 00	8 1/4	250 00	165 00	415 00
4 1/4	28 00	20 00	48 00	9 1/4	300 00	200 00	500 00
4 3/4	35 00	24 00	59 00				

SPECIAL ARTESIAN WELL BRASS CYLINDER

WITH BRONZE BALL VALVES

Fig. 311

These Cylinders are lighter and somewhat shorter than Fig. 324 Cylinders of the same diameter and length of stroke. They are made of the best material and great care is taken with their construction. In workmanship they are equal to our Standard Artesian Well Cylinders, Fig. 324, though the latter being heavier and stronger are recommended for the deepest wells and where heavy duty is to be performed. These Cylinders are suitable for service with our power working heads of same stroke.

SIZES AND PRICES

Inside Diam. of Cylinder	Length Stroke	Inside Dia. Pipe or Casing Top Attachment	Inside Dia. Pipe or Casing Bottom Attachment	Extreme Length of Cyl. with Attachments	Extreme Outside Diam. of Attachments	Capacity per Rev. Gallons.	Cipher	Price
1 1/2 in.	10 in.	2 in.	2 in.	24 in.	2 3/4 in.	.11	Captivity	17 50
2 1/4 "	10 "	2 1/4 "	2 "	25 "	3 1/4 "	.17	Caress	26 00
2 3/4 "	10 "	3 "	2 "	26 "	3 3/4 "	.26	Celebrated	34 00
3 1/4 "	10 "	3 1/4 "	2 1/2 "	29 1/2 "	4 1/4 "	.36	Coerce	45 00
1 1/2 "	16 "	2 "	2 "	30 "	2 3/4 "	.17	Champion	19 00
2 1/4 "	16 "	2 1/4 "	2 "	31 "	3 1/4 "	.27	Collision	28 00
2 3/4 "	16 "	3 "	2 "	32 "	3 3/4 "	.41	Colossal	36 00
3 1/4 "	16 "	3 1/4 "	2 1/2 "	35 1/2 "	4 3/4 "	.57	Commerce	48 00
3 3/4 "	16 "	4 "	3 "	37 "	5 1/4 "	.77	Cabinet	70 00
2 1/4 "	24 "	2 1/4 "	2 "	39 "	3 1/4 "	.61	Caboose	32 00
2 3/4 "	24 "	3 "	2 "	40 "	3 3/4 "	.61	Cactus	38 00
3 1/4 "	24 "	3 1/4 "	2 1/2 "	43 1/2 "	4 3/4 "	.86	Caddy	52 00
3 3/4 "	24 "	4 "	3 "	45 "	5 1/4 "	1.15	Cadenza	75 00
2 3/4 "	30 "	3 "	2 "	46 "	3 3/4 "	.77	Cadet	40 00
3 1/4 "	30 "	3 1/2 "	2 1/2 "	49 1/2 "	4 3/4 "	1.08	Caitiff	55 00
3 3/4 "	30 "	4 "	3 "	51 "	5 1/4 "	1.43	Calabash	80 00

N. B.—Outside diameters of all styles and sizes of Cylinders are given elsewhere

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5

281177

WROUGHT-IRON TUBULAR WELL CYLINDERS

Fig. 346

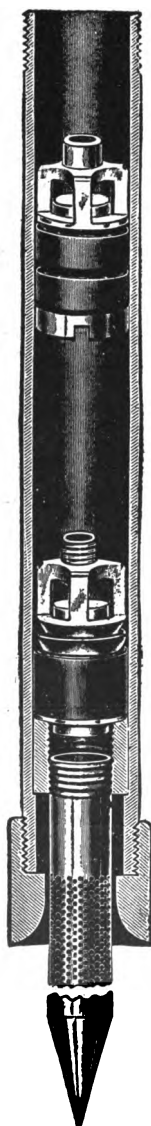


Fig. 346

Made of Galvanized or Plain extra strong Wrought-Iron Pipe, bored and polished, fitted with Driving Shoe, Turned Coupling, two Leather Plunger Valves, and three-foot sixty Gauze Flush Well Point. If desired, we will furnish four Leather Plunger Valves at small additional cost.

SIZES AND PRICES

Diameter of Cylinder Inches	Length of Cylinder Inches	Price Painted	Price Galvanized
2	24	7 65	8 10
2	36	8 50	9 00
2	48	9 50	10 00
2½	36	16 50	17 00
2½	48	18 50	19 00
3	36	22 50	23 50
3	48	25 00	26 00
4	36	41 00	43 00
4	48	45 00	48 00

BRASS-LINED TUBULAR AND ARTESIAN WELL CYLINDERS

Fig. 332

Fitted complete with Driving Shoe, Turned Coupling, four Leather Plunger Valves and either Morris Perfection or Brass Jacket Flush three-foot Well Point covered with sixty Gauze; 2-inch and 2½-inch Cylinders take 1½-inch Well Point, 3-inch takes 2-inch Well Point, and 4-inch takes 2½-inch Well Point.

SIZES AND PRICES

Diameter of Cylinder Inches	Length of Cylinder Inches	Price with Three-foot Regular Well Point	Price with Three-foot Morris Perfection Well Point
2	24	12 00	13 50
2	36	14 00	15 20
2	48	15 50	16 90
2½	24	18 00	19 35
2½	36	20 00	21 70
2½	48	24 00	25 20
3	24	23 25	27 50
3	36	26 00	30 50
3	48	30 25	34 50
4	36	45 50	50 00
4	48	50 50	55 00

When ordering these Cylinders always specify whether Open or Close Pattern Shoes are wanted. Unless otherwise specified, we will regularly furnish Close Pattern on 2-inch size, and Open Pattern on 2½ and larger sizes.

Fig. 332

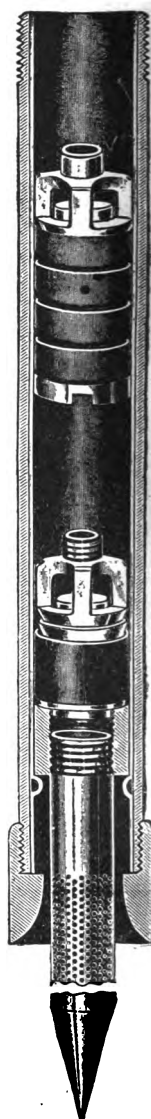


Fig. 323**TUBULAR WELL CYLINDERS****THE "EUREKA" TUBULAR WELL BRASS CYLINDERS****SIZES AND PRICES—Fig. 323 AND Fig. 349**

Size of Well	Inside Diam.	Stroke	Complete with Two-Leather Plunger	Complete with Four-Leather Plunger and Bronze Ball Valves	Size of Well	Inside Diam.	Stroke	Complete with Two-Leather Plunger	Complete with Four-Leather Plunger and Bronze Ball Valves
2 in.	1 1/2 in.	12 in.	6 40	9 00	4 in.	3 1/2 in.	24 in.	42 00	71 00
2 "	1 3/4 "	16 "	7 60	10 00	4 1/2 "	4 "	16 "	50 00	82 00
2 1/2 "	2 "	12 "	11 00	18 00	4 1/2 "	4 "	24 "	58 00	90 00
2 1/2 "	2 1/4 "	16 "	12 50	21 00	5 "	4 1/2 "	24 "	60 00	120 00
3 "	2 3/4 "	12 "	15 00	25 00	5 "	4 1/2 "	36 "	80 00	140 00
3 "	2 3/4 "	16 "	17 00	27 00	6 "	5 1/2 "	24 "	112 00	180 00
3 1/2 "	3 "	12 "	30 00	46 00	6 "	5 1/2 "	36 "	136 00	208 00
3 1/2 "	3 "	16 "	33 00	49 00	8 "	7 1/8 "	36 "	360 00	520 00
4 "	3 1/2 "	16 "	36 00	65 00	8 "	7 1/8 "	42 "	400 00	600 00

N. B.—Fig. 323 will always be furnished with Brass Poppet Valves and Two Leather Plungers. Fig. 349 with Bronze Ball Valves and Four Leather Plunger.

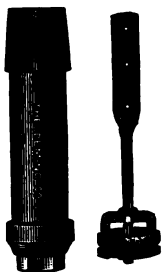
**Setting Tool for Fig. 323 and Fig. 349**

For 2 inch Cylinder.....	Each,	0 60
" 2 1/2 "	"	90
" 3 "	"	1 20
" 4 "	"	2 40
" 5 "	"	6 00

Eureka Cyl. with Poppet Valves**Eureka Cyl. with Brass Ball Valves****Fig. 347****Brass T. W. Cylinder**

Fig. 347. Taper Point Cylinders are seated like Tubular Well Valves. Furnished in all sizes and at same list prices as Figs. 323 and 349 respectively.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5

Fig. 318

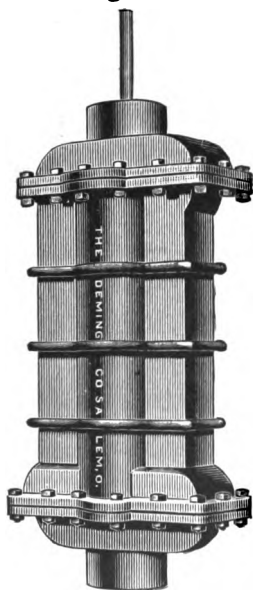
WOOD PUMP CYLINDER

Fig. 318—WITH "G" PLUNGER

Fig. 318 Cylinders are made to connect with Wood Pumps on Driven Wells.

SIZES AND PRICES

Size	Fitted for Pipe	IRON	
		Cipher	Price
3 x12	1½ inch	Cobweb	3 00
3¼x12	1½ "	Cockade	3 50
3½x12	1½ "	Cockle	4 00
4 x12	2 "	Cockney	4 50

Fig. 319

DOUBLE-ACTING WIND MILL IRRIGATING CYLINDER

ADAPTED FOR SHALLOW WELLS

Fig. 319

The cut herewith gives a general idea of Fig. 319, our Double-Acting Cylinder for shallow wells, etc.

The Single-Acting Cylinders described on previous pages are adapted for either Shallow or Deep Wells, but Fig. 319 we cannot recommend for wells over 50 feet in depth. When used as a Force Pump with Working Head, Figs. 432, 433 or 436, either of the two smaller sizes of cylinders will work satisfactorily.

The two larger sizes (four and six inch diameter) are adapted for Fig. 435 Working Head, when used as a Force Pump.

For well constructed, powerful Wind Mills, Fig. 319 Cylinders in wells from 10 to 30 feet deep will give excellent satisfaction for irrigation, as they are absolutely Double-Acting, and the quantity of water a Pump will discharge per revolution is a very important feature.

SIZES AND PRICES

Inside Diameter of Cyl.	Stroke	Total Length	Suction and Discharge for Pipe	Capacity per Stroke (revolut'n)	IRON		BRASS LINED	
					Cipher	Price	Cipher	Price
2½ inch	7 inch	17½ inch	1½ inch	.24 gal.	Coffee	10 00	Clandestine	11 00
2½ "	12 "	22½ "	1½ "	.41 "	Cochineal	12 50	Clanking	14 00
3 "	7 "	20½ "	1½ "	.43 "	Cogent	12 00	Clapboard	18 50
3 "	12 "	23½ "	1½ "	.78 "	Cockscomb	16 00	Clashing	18 00
4 "	7 "	22½ "	2 "	.76 "	Cogeneity	14 00	Clavier	17 00
4 "	12 "	27½ "	2 "	1.30 "	Coffin	18 00	Client	22 00
6 "	16 "	32½ "	3 "	3.92 "	Coiffure	85 00	Clientage	42 00

Furnished with Forked Coupling at \$1.50 extra list.

N. B.—Outside diameters of all styles and sizes of Cylinders are given elsewhere.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

SPECIAL SINGLE AND DOUBLE-CYLINDER PUMPS

FOR DEEP WELLS
WITH AIR CHAMBER AND DETACHABLE VALVE BOX CAP

Fig. 388—Single Cylinder

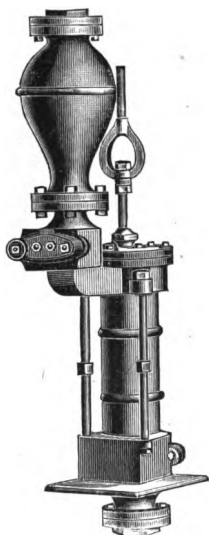
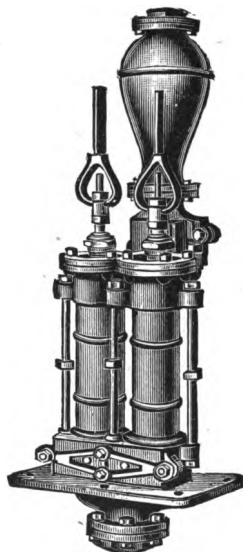


Fig. 348—Double Cylinder



Figs. 388 and 348 are made with either Iron or Brass Cylinders as in price list. To operate successfully they should be located within 20 feet of the water. We can furnish Double Cylinder Pumps **Fig. 348**, arranged for power with Pulleys and for Horse Power as shown by **Figs. 709 and 708** respectively.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig.	Diameter of Cyl.	Stroke	Capacity	IRON CYLINDER		BRASS CYLINDER	
				Cipher	Price	Cipher	Price
Single Cyl.	388	2½ inch	.21	Cranny	42 00	Crayon	44 50
	388	3 " "	.31	Crasis	44 00	Crazy	49 50
	388	3½ " "	.42	Crater	49 50	Creamy	57 00
	388	4 " "	.55	Cravat	62 00	Creaper	71 00
	388	5 " "	.85	Craven	84 50	Crepon	103 00
	388	6 " "	1.23	Crawler	101 25	Crested	129 00
Double Cyl.	348	2½ " "	.42	Convalesce	58 00	Convention	71 00
	348	3 " "	.61	Convalescent	64 00	Conventual	81 00
	348	3½ " "	.83	Convective	74 00	Converge	93 00
	348	4 " "	1.09	Convene	85 00	Convergent	108 00
	348	5 " "	1.70	Convenient	120 00	Converging	175 00
	348	6 " "	2.45	Convent	160 00	Conversable	235 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

WIND MILL IRRIGATING CYLINDER

Fig. 380

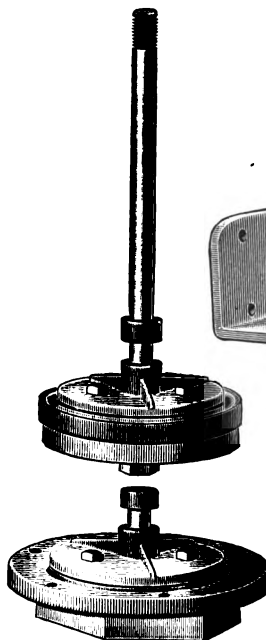


Fig. 357



Fig. 380, Irrigating Cylinder, is intended for heavy duty and may be used in connection with any of our Power Working Heads or attached to Fig. 357 — Spout connection illustrated above. A discharge Spout similar to Fig. 357 may also be arranged by bolting a standard Pipe Flange to a Box or Wooden Trough and connecting the discharge Pipe to it. When Cylinders are operated by Wind Mills, such arrangements are very generally used. These Cylinders are especially adapted for both Irrigation and Drainage. *Unless otherwise ordered, fitted top and bottom for Wrought Iron Pipe as listed. Can be fitted at top for either Wrought Iron or Riveted Pipe same size as diameter of Cylinder, and when used in this way, Plunger can be drawn up through the Pipe.*

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES, FIG. 380

Inside Diam'ter	Stroke	Total Length	Fitted for Pipe	Capacity per Stroke	Plunger Rod	IRON		BRASS-LINED	
						Cipher	Price	Cipher	Price
6 inches	12 inch	22 1/4 inch	4 inch	1 1/2 Gal.	5/8 inch	Chloroform	20 00	Cadillac	26 00
8 "	12 "	22 1/2 "	6 "	2 1/2 "	3/4 "	Chorister	26 50	Carolyn	34 50
10 "	16 "	26 1/2 "	8 "	5 1/2 "	1 "	Chowder	45 00	Cassino	57 00
12 "	16 "	34 "	8 "	7 3/4 "	1 1/4 "	Cachet	65 00	Caddice	90 00

Spout Attachment, Fig. 357, 14 in. long, 12 in. wide, 6 in. deep, fitted for 6 in. Pipe, price, \$7.00.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

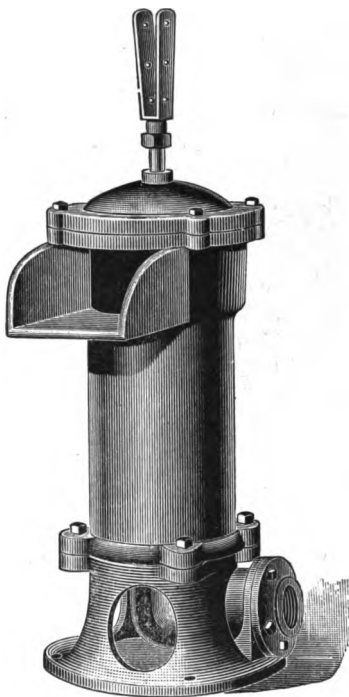
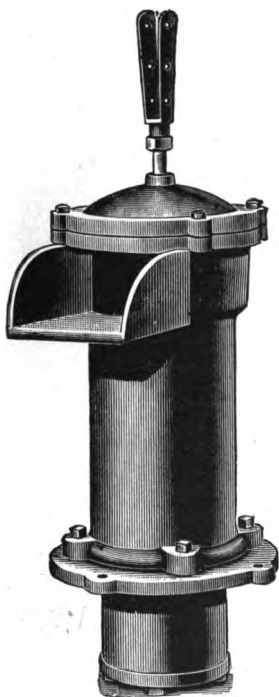
"MARINE" IRRIGATING PUMPS**FOR LIGHT DUTY****Fig. 475****Fig. 476**

Fig. 475 is adapted for raising large quantities of water short distances, with wind mill or other power. It has a flanged base to fasten to platform or foundation. The bottom flange is threaded for suction pipe. The plunger can be withdrawn after removing the top cap.

Fig. 476 is like **Fig. 475** except it is made with a tall base and has a flange at one side threaded for suction pipe.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig.	Diameter of Cylinder	Length of Stroke	Suction Fitted for	Capacity per Stroke	IRON CYLINDER		BRASS-LINED CYL.	
					Cipher	Price	Cipher	Price
475	6 inches	12 inch	3 in. Pipe	1½ Gal.	Cackler	25 00	Caliph	33 00
475	8½ "	12 "	4 "	3 "	Cajole	35 00	Calliope	45 00
475	12 "	16 "	6 "	7¾ "	Cabbling	105 00	Cabob	130 00
476	6 "	12 "	3 "	1½ "	Cabesse	28 00	Cabotage	36 00
476	8½ "	12 "	4 "	3 "	Cabiric	40 00	Caburn	50 00
476	12 "	16 "	6 "	7¾ "	Cablet	115 00	Cacao	140 00

Can be fitted for other sizes Pipe, but always fitted as listed unless otherwise ordered.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

IMPROVED TUBULAR WELL VALVES

*Fig. 375 A

2-Leather
Ball Plunger

Fig. 375 B

*Fig. 376 A

2-Leather
Poppet Plunger

Fig. 376 B

*Fig. 1069 A

4-Leather
Poppet Plunger

Fig. 1069 B

*Fig. 1074 A



Marcy Plunger

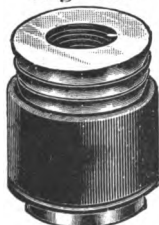
Fig. 1074 B

Bale Top
Ball Check

Fig. 1139

Bale Top
Poppet CheckScrew Top
Poppet Check

Marcy Check

Tubular Well
Seal

SIZES AND PRICES

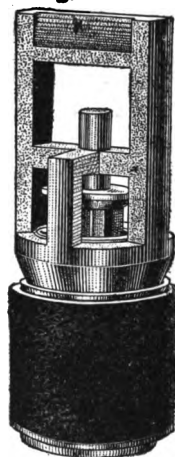
SIZE, INCHES	TWO-LEATHER				FOUR-LEATHER			
	2	2½	3	4	2	2½	3	4
Figs. 375-376 per set.....	2 40	6 00	8 00	16 00	3 20	7 00	10 00	18 00
Fig. 1069 per set.....	2 40	6 00	8 00	16 00	3 20	7 00	10 00	18 00
Figs. 375 B, 376 B, 1069 B } Check Valves only....	1 20	3 00	4 00	8 00	.....	.....	.....	.....
Fig. 1074 per set.....	3 20	8 40	12 80	.....	.....	.....	.....	.....
Fig 1074 B, Check with } Dog Coupling.....	4 20	10 20	15 40	.....	.....	.....	.....	.....
Tubular Well Seal Fig. 1139.....	.....	.....	.....	.....	2 00	3 00	4 00	8 00

*Any of the Plungers shown at top of this page can also be combined with Figs. 1073 B, 1070 B, 1133 B or 1135 B, on next page, as suits the purchaser.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

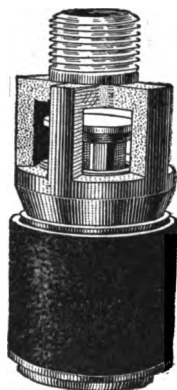
IMPROVED TUBULAR WELL VALVES

Fig. 1135 B



*Perfection Bale Top Check Valve

Fig. 1133 B



*Perfection Screw Top Check Valve

Fig. 1070 B



*Strait Check Valve

Fig. 1073 B



*Genuine Bremer Check Valve

BRASS BALL DEEP WELL VALVES

Fig. 1137



Four-Leather Brass Ball Plunger

Fig. 1138



Brass Ball Check

Fig. 1136



Two-Leather Brass Ball Plunger

Fig. 1134



Bremer Check Valve with Dog Coupling

Size, inches.....	2-Leather				4-Leather			
	2	2½	3	4	2	2½	3	4
Figs. 1073, 1070, 1133, 1135, Plunger and Check.... per set	2 40	6 00	8 00	16 00	3 20	7 00	10 00	18 00
Figs. 1073 B, 1070 B, 1133 B, 1135 B, Check Valves only, each	1 20	3 00	4 00	8 00	.....	.....	.....	.....
Figs. 1136, 1137, 1138, Plunger and Check..... per set	4 00	9 00	12 00	32 00	5 00	10 00	14 00	36 00
Fig. 1134..... each	3 20	5 00	6 40	.....	.....	.....	.....	.....

*Figs. 1073 B, 1070 B, 1133 B and 1135 B can be combined with any T. W. Plungers shown on opposite page, according to purchaser's preferences or requirements.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

STRAINERS, FOOT VALVES, ETC.

SUCTION STRAINERS

Fig. 338

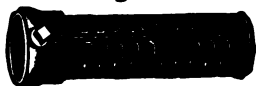


Fig. 339



Fig. 340



Size, inches		1	1½	1¾	2	* 2½	* 3
Figs. 338, 339, 340	Plain.....	0 18	0 20	0 24	0 36	0 40	0 50
	Galvanized.....	22	24	26	40	.....	.....
	Galv. and Gz. Cov'd.	28	32	36	60	.....	.....

* 2½ in. and 3 in. made only in Fig. 340 plain.

CHECK AND FOOT VALVES, ETC.

Fig. 325



Check Valve

Fig. 337



Globe Strainer

Fig. 326



Horizontal Check Valve

Fig. 330



Foot Valve and Strainer

Fig. 331



Foot Valve and Strainer

Size, inches		¾	1	1¼	1½	2	2½	3
Fig. 331	Plain.....	1 75	2 00	2 25	2 50	3 00	3 50	4 50
	Galvanized.....	2 25	2 50	3 00	3 50	4 50	5 50	7 00
Fig. 330	Plain.....	1 50	1 75	2 00	2 50	3 00	4 25	.....
	Galvanized.....	2 00	2 25	2 75	3 50	4 50	6 00	.....
Fig. 325	Plain.....	1 50	1 75	2 00	2 50	3 00	4 25	.....
	Galvanized.....	2 00	2 25	2 75	3 50	4 50	6 00	.....
Fig. 326	Plain.....	1 00	1 25	1 50	2 00	2 75	4 00	6 00
	Galvanized.....	1 50	1 75	2 25	3 00	4 00	5 50	8 00
Fig. 337	Plain.....	.....	40	50	65	1 00	1 50	2 00
	Galvanized.....	.....	50	60	75	1 25	1 90	2 65

FIGS. 328 AND 341 FOR SUCTION PIPE OF STEAM PUMPS, ETC.

Fig. 327



Foot Valve and Strainer

Fig. 328

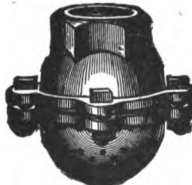
Foot Valve & Strainer
4 in. and smaller

Fig. 328

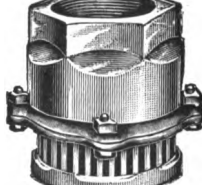
Foot Valve & Strainer
4½ in. and larger

Fig. 341



Strainer

Size, inches	1	1½	1¾	2	2½	3	3½	4	4½	5	6	7	8	10	12
Fig. 327, Plain.....	1 25	1 50	1 75	2 25	2 50	3 75	.....	.....	.....	.....	.....	.....	.....	.....	.....
" 327, Galvanized.....	1 50	1 75	2 25	3 75	4 25	5 25	.....	.....	.....	.....	.....	.....	.....	.....	.....
" 328, Screwed, Plain.....	42	48	62	82	101	120	140	160	180	200	220	240	260	280	300
" 328, " Galv.	60	75	100	145	200	270	350	450	550	650	750	850	950	1100	1300
" 328, Flanged, Plain.....	.....	.....	.....	3 50	4 50	5 50	6 50	7 50	8 50	9 50	10 50	11 50	12 50	13 50	14 50
" 341, Screwed, Plain.....	22	28	40	54	80	105	130	155	180	205	230	255	280	305	330
" 341, " Galv.	32	42	56	75	101	130	160	190	220	250	280	310	340	370	400

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

TANK AND FLOAT VALVES AND FLOATS

Fig. 350



Fig. 352

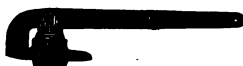


Fig. 354



Fig. 351



Fig. 1079



Fig. 355



Fig. 356



Fig. 353



SIZES AND PRICES

Sizes in Inches, of Pipe for which they are fitted		¾	1	1¼	1½	2	2½	3	4
Fig.	350 Float Valve, each.....	80	80	1 00					
"	351 " " " " " "	80	80	1 00					
"	1079 Enterprise Float Valve, each.....	1 25	1 38	1 50	3 00	5 00	7 50	10 00	
"	352 Tank Outlet " " " "	80	80	1 00	1 25				
"	354 Vertical Float " " " "	1 00	1 00	1 25					
"	355 " Tank Valve, Brass, with Yoke	2 50	3 50	5 75	8 00	12 00	17 00		
"	353 Tank Check Valve, each.....	75	75	90	1 00				
"	856 " Valve, Cast Iron, with Brass Plug					4 00	5 00	6 50	9 50

Fig. 1117

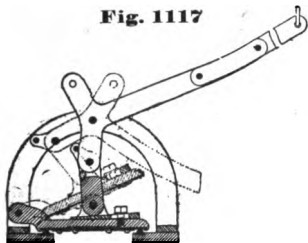


Fig. 1118



Enterprise Reversible Float and Outlet Valves for Water Works and Railroads

Size, inches.....	4	5	6	7	8
Screwed, each ...	22 00	32 00	45 00	60 00	75 00
Flanged	25 00	36 00	50 00	65 00	80 00

Enterprise Tank Outlet or Flush Out Valve

The main body of the Valve is flush with the Tank bottom, permitting the sediment to be easily removed and the Tank thoroughly cleansed.

Price, 3 inch Enterprise Tank Outlet Valve, each	17 00
--	-------

Fig. 1078



COPPER AND GALVANIZED IRON FLOATS

Can be bolted to a Lever attached to Tank Valve, to open and close automatically.

SIZES AND PRICES

Copper, size, 9½x2¾ inches, each.....	1 25
12 x3 " ".....	1 75
Galvanized Iron, size, 9½x2¾ inches, each.....	1 00
" " 12 x3 " ".....	1 50

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

AIR CHAMBERS, WATER CONDUCTORS, ETC.

HYDRAULIC AIR CHAMBERS. Fig. 369

Fig. 369



These Air Chambers are adapted for attaching to the Conducting Pipe where Pumps are required to work against great pressure or force water through a long lead of pipe. Their use will greatly lessen the wear on the Pumps. They are fitted with Tee Connection.

SIZES AND PRICES

Size, inches.....	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Price, each.....	1 50	2 00	2 50	3 00	5 00	8 00

Fig. 359

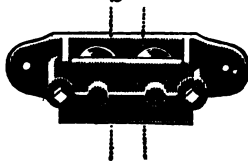


Fig. 343



ROLLER PISTON ROD GUIDES

Fig. 359

For Rod.....	$\frac{5}{8}$ or $\frac{3}{4}$ in.	$\frac{7}{8}$ in.	1 in.
Price.....	1 25	1 50	2 50

HANDLE BALLS

Fig. 343

Weight.....	$2\frac{3}{4}$	$4\frac{1}{4}$	6	8	$12\frac{1}{2}$
Price, each...	0 80	0 45	0 80	0 80	1 25

Fig. 344



Water Conductor

Fig. 362

Goose Neck
for Upward Discharge

Fig. 368

Malleable Hose Clevis
for Pump Spout

WATER CONDUCTORS

Fig. 344

The Water Conductor is a great convenience for conveying water from the Spout of Pumps to Troughs and Tanks situated at a distance. It is made to swivel and conduct the water in any direction desired. For $1\frac{1}{4}$ or $1\frac{1}{2}$ inch Conducting Pipe, as ordered. Price, each.....1 00

GOOSE NECK Fig. 362

Size	Fitted for Hose Coupling	Without Hose Coupling		With Hose Coupling	
		Cipher	Price	Cipher	Price
$\frac{3}{4}$	$\frac{3}{4}$ inch	Competent	0 60	Compliment	0 90
1	1 "	Compiler	60	Component	1 25
$1\frac{1}{4}$	$1\frac{1}{4}$ "	Complacent	80	Composer	1 50
$1\frac{1}{2}$	$1\frac{1}{2}$ "	Complex	90	Comprehend	1 80
2	2 "	Complexity	1 00	Compulsion	2 50

MALLEABLE HOSE CLEVIS

Fig. 368

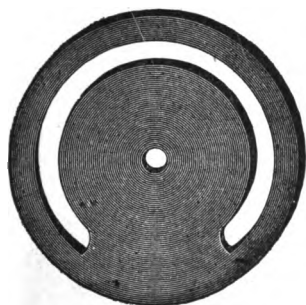
For Pump Spout

Price, each.....0 50

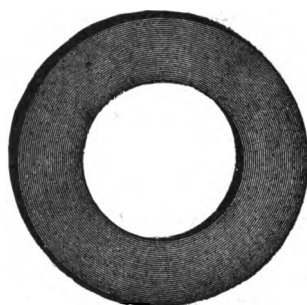
N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

VALVE AND PLUNGER LEATHERS, ETC.

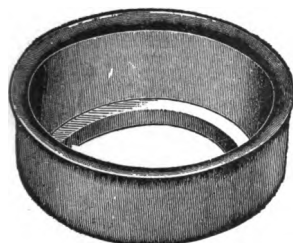
MADE OF PURE OAK-TANNED STOCK



Lower Valve Leather



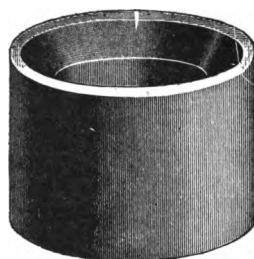
Plunger Leather—Not Crimped



Plunger Leather Crimped



Rubber or Bronze
Ball



Tubular Well Valve Rubber

SIZES AND PRICES

Size, inches (Diam. Cyl.).....	2	2½	2¾	3	3½	3¾	4	4½	5	6	
Lower Valve Leathers.....each	10	11	12	13	15	17	19	24	38	45	60
Plunger Leathers, flat....."	08	09	10	11	13	14	16	17	20	30	40
crimped....."	15	17	20	22	25	28	32	35	42	70	1 00
Ring Packings for Cylinders, not shown...."	04	04	05	05	06	07	08	10	12	15	18
Tubular Well Valve Rubbers....."	16		80		40			60			

CRIMPED PLUNGER LEATHERS FOR ARTESIAN WELL CYLINDERS

Figs. 311 and 324

Size, inches (Diam. Cyl.)	1½	1¾	2¼	2¾	3¼	3¾	4¼	4¾	5¼	5¾	6¼	6¾	7¼	8¼	9¼
Price, Plunger Leathers, each..	20	25	30	35	45	60	75	1 00	1 25	1 50	1 75	2 00	2 50	3 00	4 00

RUBBER VALVE BALLS

Diameter, inches	1	1½	1¾	1¾	1½	1¾	1¾	1¾	2	2¼	2½
Price, per doz.	1 00	1 40	1 90	2 50	3 25	4 00	4 75	5 50	6 50	8 00	10 50

BRONZE VALVE BALLS

Diameter, inches	¾	¾	1¼	¾	1	1½	1¼	1¾	1¾	1¾	1¾	2	2¼
Price, each	50	50	55	60	75	1 00	1 25	1 25	1 50	2 25	2 50	2 75	3 25

Diameter, inches	2¾	2¾	3	3¼	3¾	3¾	4¼	4¼	4¼	5	5¼	5¼	6¼	8¼
Price, each	8 50	4 00	5 25	6 50	8 50	8 00	9 50	12 00	14 00	16 50	18 50	21 00	27 00	40 00

Genuine Oak Tanned Leather for Pump Valves and Plungers in Sides. Price on application.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

COUPLINGS FOR IRON AND WOOD ROD, ETC.

Hexagon Rod Coupling



HEXAGON AND BEADED ROD COUPLINGS SIZES AND PRICES

Fitted for Rod	$\frac{3}{8}$	$\frac{7}{8}$	$\frac{3}{8} \times \frac{7}{8}$	$\frac{1}{2}$
Threads to Inch.....	14	12	14x12	12
Plain, per lb.....	0 40	0 40	0 40	0 40
Galvanized, per lb.....	60	60	60	60
Brass, per lb.....	1 00	1 00	1 00	1 00

These Couplings are tapped $\frac{1}{16}$ inch over-size unless otherwise ordered.

Beaded Rod Coupling



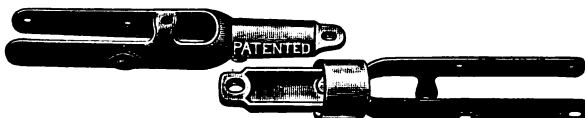
MALLEABLE WOOD ROD COUPLINGS



SIZES AND PRICES

Size	2 Rivet Holes		3 Rivet Holes		Heavy Pattern	
	Plain	Galvanized	Plain	Galvanized	Plain	Galvanized
1 in.	0 20 per set	0 40 per set	0 40 per set	0 60 per set	0 40 per set	0 60 per set
$1\frac{1}{4}$ "						

VICTOR WOOD ROD COUPLINGS



No joints to unscrew or become loose. Instantly adjusted by placing together and sliding the ring on taper shank.

For 1 in. Rods, price per set, plain..... 0 20
galvanized..... 40

WROUGHT IRON WOOD ROD JOINTS, WITH BOX AND PIN COUPLING Fig. 636



SIZES AND PRICES—JOINTS AND ASH RODS

Size of Rod (Diameter)	Size Box and Pin Connecting Joints	Price per Foot, Ash Rods with Joints	Price of Joints per Pair (Fig. 636)	Adapted for Working Barrel (Diameter)
$1\frac{1}{2}$ in.	$\frac{3}{4}$ in.	0 20	1 75	From $2\frac{1}{2}$ to $4\frac{1}{2}$ in.
$2\frac{1}{2}$ "	$1\frac{1}{4}$ "	50	5 00	" $4\frac{1}{2}$ to $5\frac{1}{2}$ "
$3\frac{1}{2}$ "	$1\frac{1}{2}$ "	1 20	10 00	" $5\frac{1}{2}$ to $6\frac{1}{2}$ "

SQUARE AND OCTAGON WOOD RODS—WITHOUT COUPLINGS—RANDOM LENGTHS

Size of Rod, inches	1	$1\frac{1}{2}$	$1\frac{3}{4}$	$2\frac{1}{4}$	$2\frac{1}{2}$	$3\frac{1}{4}$
Square Hard Pine Rod, per 100 ft....	1 75	2 50	2 50	3 00	4 00	.....
Square Ash Rod, "	3 00	4 00	4 00	5 00	6 00	.....
Octagon Ash Rod, "		4 00	.....	6 00	.....	8 00

STEEL PUMP ROD

We carry in stock Black (Mild Steel) and Galvanized Cold Drawn Steel Rods in sizes of $\frac{1}{2}$, $\frac{3}{4}$ and $\frac{1}{2}$ inch. Prices on application.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

WIND MILL REGULATORS, ETC.

THE WALLEN DOUBLE-ACTING WIND MILL PITMAN SPRING



These springs relieve the Mill and Pump from shock at the beginning and end of each stroke, as they equalize the work. Pounding, jerking and breakage of Pitmans, etc., are thus avoided.

APPROXIMATE CAPACITY OF SPRINGS

No. 1 for 50 to 80 feet lift with 2 to 8 in. cylinder. No. 4 for 225 to 325 feet lift with $2\frac{1}{2}$ to 4 in. cylinder.
No. 2 for 90 to 150 feet lift with 2 to 8 in. cylinder. No. 5 for very Deep Well Pumps, or large Irrigating Pumps.
No. 3 for 160 to 225 feet lift with $2\frac{1}{4}$ to $3\frac{1}{2}$ in. cylinder.

SIZES AND PRICES

NUMBER	1	2	3	4	5
Price, each	2 00	2 00	2 50	3 00	3 50

Fig. 390

THE HERCULES WIND MILL CONNECTION

Fig. 390

It holds the Pump Rod firmly in position. The weighted wrench forces the set screw in hole of Slide Iron and clamps it firmly to the Pump Rod. Wrench cannot detach itself.

Two complete turns to the left allows the Pump Rod to play freely in the Slide Iron, and the connection is made again by turning twice to the right.



Fig. 365

Fig.	For Pump with	Cipher	Price
390	6 to 10 in. Stroke	Defend	1 25

IMPROVED WIND MILL REGULATOR CYLINDER

For Regulating Tank Supply

Fig. 365

This Cylinder has Brass Body with Iron Caps. It is connected to a Tee in the discharge pipe between the Pump and Tank. When the water in the Tank closes the float Valve, the water from the pump is then forced into the Regulator Cylinder, forcing the plunger upwards and operating the Lever, Wire or Chain to which it is attached for pulling the Mill out of gear.

A weight sufficient to pull the Mill in gear again (when the water recedes from Tank) should be fastened to the end of Lever which actuates the Piston Rod.

SIZES AND PRICES

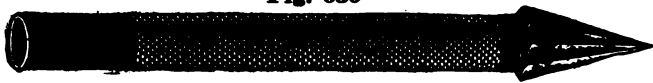
No.	Diameter	Length	Stroke	Cipher	Price
1	$2\frac{1}{2}$ in.	16 in.	14 in.	Converted	11 00
2	3 "	14 "	12 "	Converting	12 00



In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

BRASS JACKET DRIVE WELL POINTS

Fig. 630



Trade No	Size	Length	Jacket	Holes	PRICES BY THE DOZEN			
					No. 60 Gauge	No. 80 Gauge	No. 90 Gauge	No. 100 Gauge
74	1 in.	2 feet	18 inch	70	33 00	46 00	52 00	62 00
76	1 "	2½ "	24 "	100	42 00	56 00	64 00	78 00
78	1 "	3 "	30 "	120	51 00	66 00	76 00	94 00
80	1 "	3½ "	36 "	140	60 00	76 00	88 00	120 00
82	1 "	4 "	42 "	160	69 00	86 00	100 00	136 00
84	1 "	4½ "	48 "	190	78 00	96 00	112 00	152 00
86	1½ "	20 inches	14 "	80	30 00	42 00	50 00	64 00
90	1½ "	2 feet	18 "	100	36 00	52 00	60 00	80 00
94	1½ "	2½ "	24 "	125	46 00	64 00	75 00	100 00
98	1½ "	3 "	30 "	150	56 00	76 00	90 00	120 00
100	1½ "	3½ "	36 "	175	66 00	88 00	105 00	140 00
102	1½ "	4 "	42 "	200	76 00	100 00	120 00	160 00
106	1½ "	4½ "	48 "	225	86 00	112 00	135 00	180 00
110	1½ "	5 "	54 "	250	96 00	124 00	150 00	200 00
112	1½ "	5½ "	60 "	275	106 00	136 00	165 00	220 00
114	1½ "	6 "	66 "	300	116 00	148 00	180 00	240 00
136	1½ "	2 "	18 "	120	48 00	65 00	78 00	91 00
140	1½ "	2½ "	24 "	160	60 00	80 00	96 00	118 00
144	1½ "	3 "	30 "	200	72 00	95 00	114 00	142 00
146	1½ "	3½ "	36 "	230	84 00	110 00	132 00	166 00
148	1½ "	4 "	42 "	270	96 00	125 00	150 00	180 00
150	1½ "	4½ "	48 "	310	108 00	140 00	168 00	204 00
152	1½ "	5 "	54 "	350	120 00	155 00	186 00	228 00
154	1½ "	5½ "	60 "	390	132 00	170 00	204 00	252 00
156	1½ "	6 "	66 "	420	144 00	185 00	222 00	276 00
160	2 "	2 "	18 "	140	75 00	94 00	110 00	130 00
164	2 "	2½ "	24 "	200	90 00	112 00	132 00	160 00
168	2 "	3 "	30 "	260	105 00	130 00	154 00	190 00
170	2 "	3½ "	36 "	290	120 00	148 00	176 00	220 00
172	2 "	4 "	42 "	330	135 00	166 00	198 00	250 00
174	2 "	4½ "	48 "	380	150 00	184 00	220 00	280 00
176	2 "	5 "	54 "	430	165 00	202 00	242 00	310 00
178	2 "	5½ "	60 "	480	180 00	220 00	264 00	340 00
180	2 "	6 "	66 "	530	195 00	238 00	288 00	370 00
184	2½ "	3 "	30 "	300	180 00	230 00	260 00	300 00
188	2½ "	4 "	42 "	360	230 00	300 00	340 00	400 00
192	2½ "	5 "	54 "	420	280 00	370 00	420 00	500 00
196	2½ "	6 "	66 "	480	330 00	440 00	500 00	600 00
200	3 "	3 "	30 "	300	240 00	310 00	340 00	410 00
204	3 "	4 "	42 "	420	300 00	390 00	430 00	520 00
208	3 "	5 "	54 "	540	360 00	470 00	520 00	630 00
212	3 "	6 "	66 "	660	420 00	550 00	610 00	740 00
216	4 "	4 "	36 "	360	480 00	560 00	600 00	700 00
220	4 "	6 "	60 "	600	630 00	760 00	840 00	1 000 00
224	4 "	8 "	84 "	840	780 00	960 00	1 080 00	1 300 00
228	4 "	10 "	1 08 "	1 080	930 00	1 160 00	1 320 00	1 600 00

Fig. 674



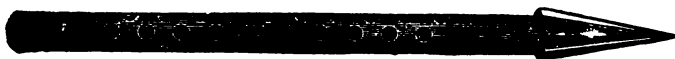
Open End Extension Points, Galvanized.

Same list as Fig. 630. Can furnish any size required.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

WASHER DRIVE WELL POINTS

Fig. 631



These Points are made of Galvanized Iron Pipe, Bored and Countersunk. Each hole is covered with Gauze, held in its place by a Brass Washer and riveted.

We use only the heaviest Gauze, cut from new stock, in making these Points, and when Gauze finer than No. 60 is required, we put a thickness of No. 60 Gauze under the finer Gauze to give the required strength.

Trade No.	Size	Length	Holes	PRICE, PER DOZEN				
				No. 60 Gauze	No. 70 Gauze	No. 80 Gauze	No. 90 Gauze	No. 100 Gauze
300	1½ in.	20 in.	50	30 00	36 00	42 00	50 00	64 00
301	1½ "	2 ft.	60	36 00	44 00	52 00	60 00	80 00
302	1½ "	2½ "	80	46 00	55 00	64 00	75 00	100 00
303	1½ "	3 "	100	56 00	66 00	76 00	90 00	120 00
304	1½ "	3½ "	120	66 00	77 00	88 00	105 00	140 00
305	1½ "	4 "	140	76 00	88 00	100 00	120 00	160 00
320	1½ "	2 "	80	48 00	57 00	65 00	78 00	94 00
321	1½ "	2½ "	110	60 00	70 00	80 00	96 00	118 00
322	1½ "	3 "	130	72 00	84 00	95 00	114 00	142 00
323	1½ "	3½ "	150	84 00	97 00	110 00	132 00	160 00
324	2 "	2½ "	140	90 00	101 00	112 00	132 00	160 00
325	2 "	3 "	170	105 00	118 00	130 00	154 00	190 00
326	2 "	3½ "	220	120 00	134 00	148 00	176 00	220 00

BRASS JACKET TUBULAR WELL POINTS

Fig. 629



Trade No.	Size	Length	Jacket	Holes	PRICES BY THE DOZEN				
					No. 60 Gauze	No. 70 Gauze	No. 80 Gauze	No. 90 Gauze	No. 100 Gauze
73	1 in.	30 inches	18 inch	70	34 00	40 00	45 00	50 00	55 00
75	1 "	36 "	18 "	70	38 00	44 00	50 00	56 00	66 00
75½	1 "	36 "	24 "	100	43 00	49 00	55 00	62 00	77 00
77	1 "	42 "	24 "	100	47 00	54 00	60 00	68 00	82 00
77½	1 "	42 "	30 "	120	52 00	59 00	65 00	74 00	93 00
79	1 "	48 "	30 "	120	56 00	63 00	70 00	80 00	98 00
79½	1 "	48 "	36 "	140	61 00	68 00	75 00	86 00	109 00
81	1 "	54 "	36 "	140	65 00	73 00	80 00	92 00	114 00
81½	1 "	54 "	42 "	160	70 00	78 00	85 00	98 00	125 00
83	1 "	60 "	42 "	160	74 00	82 00	90 00	104 00	130 00
117	1½ "	30 "	18 "	100	41 00	49 00	57 00	65 00	85 00
118	1½ "	36 "	24 "	125	51 00	60 00	68 00	80 00	100 00
119	1½ "	42 "	24 "	125	56 00	65 00	73 00	85 00	105 00
122	1½ "	42 "	30 "	150	61 00	71 00	80 00	95 00	120 00
123	1½ "	48 "	30 "	150	66 00	76 00	85 00	100 00	125 00
126	1½ "	48 "	36 "	175	71 00	82 00	92 00	110 00	140 00
127	1½ "	54 "	36 "	175	76 00	87 00	97 00	115 00	145 00
130	1½ "	54 "	42 "	200	81 00	92 00	104 00	125 00	160 00
130½	1½ "	60 "	42 "	200	86 00	98 00	110 00	130 00	170 00
132	1½ "	60 "	48 "	225	91 00	104 00	116 00	140 00	180 00
142	1½ "	63 "	36 "	175	80 00	91 00	102 00	120 00	150 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

SPECIAL CISTERN FORCE PUMPS

WITH BRASS CYLINDER
AND PATENT RUBBER VALVE SEAT

Fig. 518

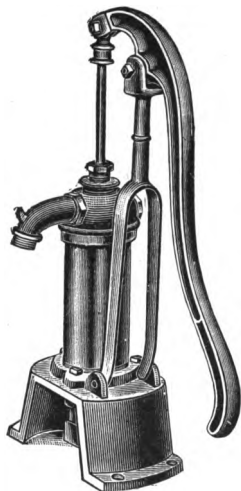
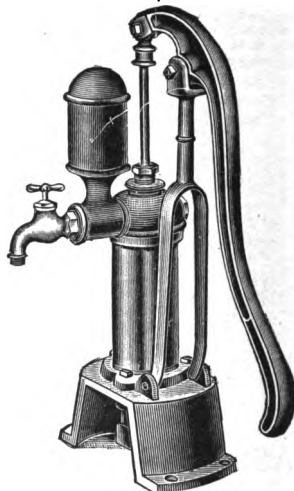


Fig. 519



The above cuts represent our new Cistern Force Pumps with Brass Cylinder. They will be found useful in elevating water to Bathroom, Tank or any part of the House by running pipes from the back outlet. We furnish this Pump with either Plain or Cock Spout and with or without Air Chamber. The long swinging Fulcrum which is attached to the Base relieves the joints of the Pump from unequal strain common to the ordinary Cistern Force Pumps. These Pumps can be fitted for Lead or Iron Pipe, but always furnished for Iron Pipe unless otherwise ordered.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig.	Size Cyl.	Suction Fitted For	Stroke	Cipher	*Spout	Price
518	3 inch	1½ inch Pipe	6 inch	Endogen	Plain	8 50
518	3 "	1½ " "	6 "	Endocarp	Cock	11 00
519	3 "	1½ " "	6 "	Endoderm	Plain	10 00
519	3 "	1½ " "	6 "	Enfilade	Cock	12 50

* In ordering always state style of spout. For Nickel-plated Cylinders add 1.00 to list.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED HAND FORCE PUMPS

WITH PATENT RUBBER VALVE SEAT AND BACK OUTLET:
FOR DOMESTIC USE

Fig. 514

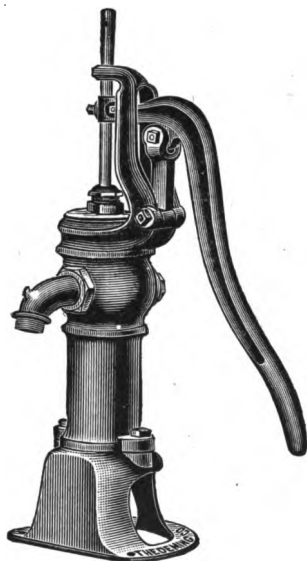
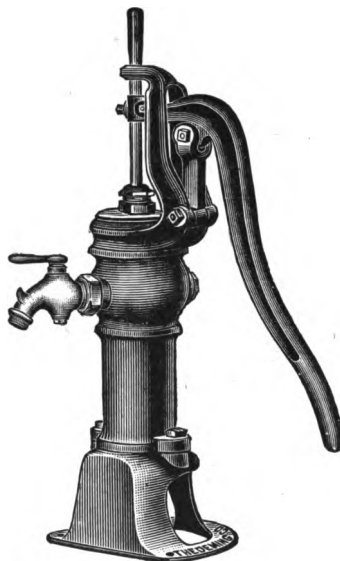


Fig. 515



The Pumps illustrated above are especially adapted for House Tank Service. Fig. 515 should be selected for such use, making connection to Tank or Bath Room from the back outlet—which is fitted for 1 inch pipe. The Spouts are fitted to connect with 1 inch Hose Couplings.

These Pumps have the suction, like Pitcher Spout Pumps, fitted for both Iron and Lead Pipe. The movable link Fulcrum with Rod guide gives a direct and smooth vertical motion to the piston rod and avoids an uneven wearing of the plunger and stuffing-box. The top may be revolved so as to use the Pump right or left handed.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

	No.	Size Cyl.	Suction for Pipe	Discharge for Hose	Stroke	Fig. 514.		Fig. 515.	
						Cipher	Price	Cipher	Price
{ Iron }	1	2½ in.	1 in.	¾ in.	4 in.	Earthy	6 00	Eastward	8 50
{ Cyl. }	2	3 "	1¼ "	¾ "	4 "	Easily	7 00	Eating	9 50
{ Brass }	1	2½ "	1 "	¾ "	4 "	Exertive	7 50	Exigent	10 00
{ Lin'd }	2	3 "	1¼ "	¾ "	4 "	Exhale	8 50	Exile	11 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE "NEW ERA" DOUBLE-ACTING HOUSE FORCE PUMP

WITH PATENT RUBBER VALVE SEAT
PLAIN SPOUT AND DISPLACEMENT PLUNGER

Fig. 540

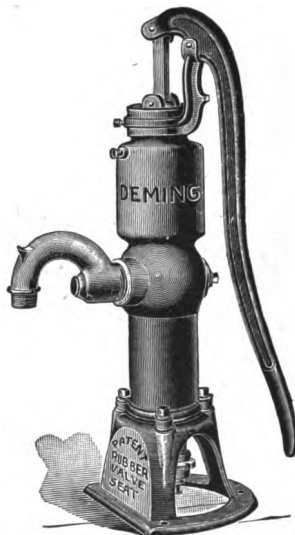


Fig. 540, the Pump illustrated by the above engraving, is becoming very popular for house use in pumping from cisterns and shallow wells where the water is within easy vertical suction distance. The back outlet allows of discharging into a tank, and when used in this way the Pump shown on next page is preferable. This Pump is made in two sizes with 3 and 3½ inch cylinder respectively. The spout is fitted with ¾-inch hose connection. The cylinders are brass and brass-lined as listed below. The air chamber surrounds the upper cylinder and in other ways the construction is such as to give the greatest efficiency. *For description of Rubber Valve Seat see page preceding Cylinders.*

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Suction Fitted for	Stroke	BRASS-LINED CYL.		BRASS CYLINDER	
				Cipher	Price	Cipher	Price
2	3 inch.	1¼-in. pipe.	3¼ in.	Earless	8 50	Eagle	9 50
3	3½ "	1½ " pipe.	3½ "	Earlock	10 00	Eaglet	11 50

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE "NEW ERA" DOUBLE-ACTING HOUSE FORCE PUMP

WITH PATENT RUBBER VALVE SEAT
COCK SPOUT AND BACK DISCHARGE OUTLET

Fig. 544

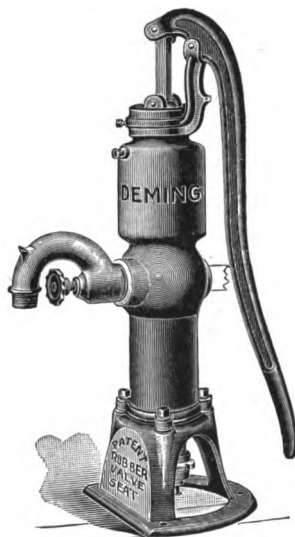


Fig. 544 is like Fig. 540 on preceding page, except that it has a stop cock on spout, and with the back outlet the Pump admits of using to the best advantage in house tank service.

As a Plumber's Tank Force Pump of medium capacity, the New Era cannot be surpassed. Fig. 544 is made in the same sizes as Fig. 540, and the general construction, of course, is the same, the principal difference being in the Cock Spout. The hose connection on spout is very convenient for watering gardens and for fire protection. *For description of Rubber Valve Seat see page preceding Cylinders.* The back outlet is threaded for 1-inch Pipe.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

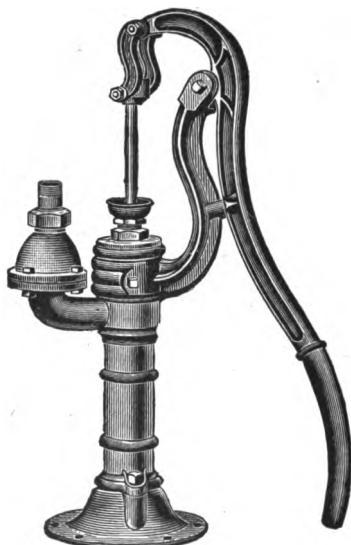
No.	Size Cyl.	Suction Fitted for	Stroke	BRASS LINED CYL.		BRASS CYLINDER	
				Cipher	Price	Cipher	Price
2	3 in.	1½ in.	3½ in.	Eagless	10 50	Easterly	11 50
3	3½ "	1½ "	3½ "	Earwig	12 00	Ebbing	13 50

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

IMPROVED HAND FORCE PUMP ON BASE

WITH ADJUSTABLE LEVER AND BRASS PISTON-ROD

Fig. 502



The Cylinder or Working Barrel of Fig. 502 is in the stock of the Pump. It is provided with a substantial Base, a Brass Piston-rod and Adjustable Lever; and has a Stuffing-Box, which gives it the power of forcing water. When required with an Air Chamber see Figs. 504 to 512 on following pages. This Pump is made with Brass Valve Seat and coupling below the Base fitted for both Lead and Iron Pipe. All parts are made to exact gauges, and repairs will always fit. To prevent freezing, the Lever should be raised to its extreme height, which trips the Valves and allows the water to escape from the Cylinder. The Pump should be located a vertical distance from the water, not over 25 feet.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No	Size Cyl	Fitted for Suction and Discharge Pipe	Stroke	IRON		BRASS LINED		BRASS CYL.	
				Cipher	Price	Cipher	Price	Cipher	Price
1	2 inch	1½ inch	6 inch	Eager	8 00	Echinite	10 00	Earthen	13 50
2	2½ "	1½ "	6 "	Eagerly	9 50	Editorial	12 00	Earthly	14 00
3	3 "	1½ "	6 "	Earldom	11 00	Effront	14 00	Earthquake	15 00
4	3½ "	1½ "	8 "	Earnest	17 00	Elephant	22 00	Earthwork	24 00
5	4 "	2 "	8 "	Earnestly	18 00	Embattle	26 00	Easel	31 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED HAND FORCE PUMP ON PLANK

WITH ADJUSTABLE LEVER AND BRASS PISTON-ROD

Fig. 503

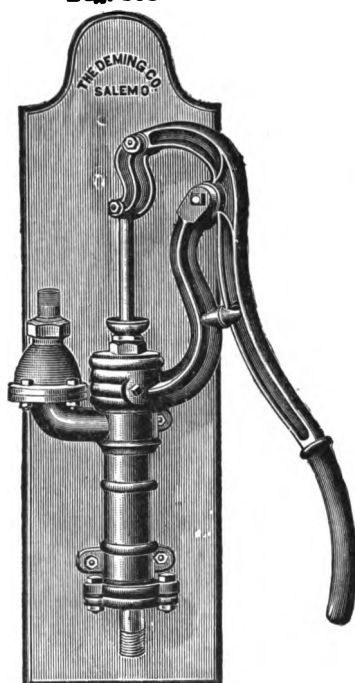


Fig. 503 is a Force Pump similar in every respect to Fig. 502, described on the preceding page, except in the matter of the Brackets attaching it to a Plank, and in the Flange at the bottom of the Cylinder, which adapt this Pump for attaching to the wall.

It is arranged for both Lead and Iron Pipe, has a Brass Valve Seat, and is in every way well constructed. To prevent freezing, raise the Lever to the extreme height.

In locating this Pump, it should not be placed more than 25 feet vertically from the water.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Suction and Discharge Fitted for Pipe	Stroke	IRON		BRASS LINED		BRASS CYL.	
				Cipher	Price	Cipher	Price	Cipher	Price
1	2 inch	1½ inch	6 inch	Ebrious	8 00	Embroid	10 00	Echo	13 50
2	2½ "	1½ "	6 "	Ebullition	9 50	Empale	12 00	Echoed	14 00
3	3 "	1½ "	6 "	Eccentric	11 00	Emulgent	14 00	Echoing	15 00
4	3½ "	1½ "	8 "	Ecclesiast	17 00	Encounter	22 00	Echoless	24 00
5	4 "	2 "	8 "	Echinus	18 00	Enlock	26 00	Eclat	31 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

IMPROVED HAND FORCE PUMP ON BASE

WITH ADJUSTABLE LEVER AND BRASS PISTON-ROD
UPWARD DISCHARGE

Fig. 504

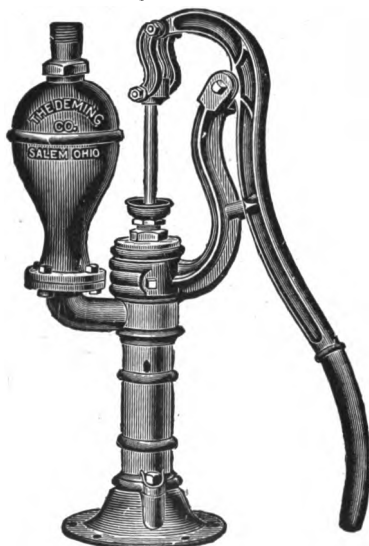


Fig. 504 is similar to Fig. 502, with the addition of an Air Chamber with upward discharge.

Fig. 504 is arranged for both Lead and Iron Pipe. In all its working parts it is the same as Figs. 502 and 503. Freezing may be prevented by raising the Lever to its extreme height. The Cylinder of the Pump should not be more than 25 feet vertically from the water. This Pump is very convenient for Tank use, and is largely used by plumbers.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11, to 16.

SIZES AND PRICES

No.	Size Cyl.	Fitted for Suction and Discharge Pipe	Stroke	IRON		BRASS-LINED		BRASS CYL.	
				Cipher	Price	Cipher	Price	Cipher	Price
1	2 in.	1 1/4 in.	6 in.	Ecstatic	8 50	Entering	10 50	Edging	14 00
2	2 1/4 "	1 1/2 "	6 "	Eddy	10 00	Entoil	12 50	Edible	15 00
3	3 "	1 3/4 "	6 "	Eden	12 00	Entry	15 00	Edict	16 00
4	3 1/4 "	1 3/4 "	8 "	Edgeless	18 00	Epicure	23 00	Edifice	26 00
5	4 "	2 "	8 "	Edgewise	21 00	Epitaph	29 00	Edify	34 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED HAND FORCE PUMP ON PLANK

WITH ADJUSTABLE LEVER AND BRASS PISTON-ROD

UPWARD DISCHARGE

Fig. 505

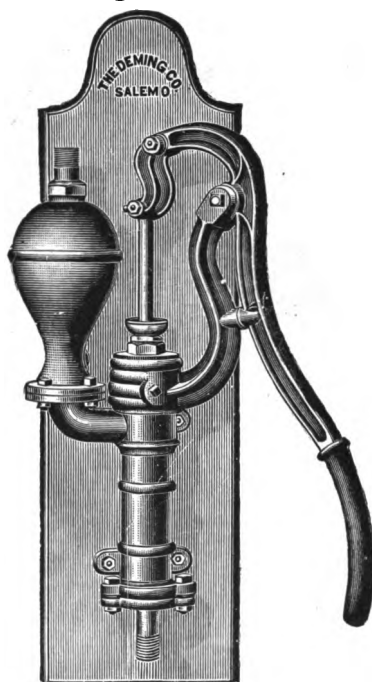


Fig. 505 is similar to Fig. 504 in its essential parts. It is bolted to a Plank instead of a Base, as shown and fitted for both Lead and Iron Pipe. To prevent freezing, raise the Lever to its extreme height. The Pump should not be located more than 25 feet above the water to insure its successful operation.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Fitted for Suction and Discharge Pipe	Stroke	IRON		BRASS LINED		BRASS CYL.	
				Cipher	Price	Cipher	Price	Cipher	Price
1	2 inch	1½ inch	6 inch	Effable	8 50	Escapite	10 50	Efflate	14 00
2	2½ "	1½ "	6 "	Effaced	10 00	Escaping	12 50	Efflux	15 00
3	3 "	1½ "	6 "	Effectual	12 00	Espied	15 00	Effort	16 00
4	3½ "	1½ "	8 "	Effervesce	18 00	Estate	23 00	Effulge	26 00
5	4 "	2 "	8 "	Effigy	21 00	Ethal	29 00	Effuse	34 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

IMPROVED HAND FORCE PUMP ON BASE

WITH ADJUSTABLE LEVER AND BRASS PISTON-ROD
UPWARD DISCHARGE

Fig. 508



The Pump illustrated above is the same as Fig. 506, with a Cock Spout on the side discharge. Fig. 508 is adapted for use under the same conditions as Figs. 506 and 507, and will be found even more convenient than those Pumps. The spout of Fig. 508 is threaded for Hose Coupling, which makes it very convenient for fire protection and other purposes for which such a Pump may be used. For tank use Figs. 508 and 509 are in greater demand than any other of our Hand Force Pumps.

Freezing is prevented by raising the Lever to its extreme height.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Fitted for Suction and Discharge Pipe	Stroke	IRON		BRASS LINED		BRASS CYL.	
				Cipher	Price	Cipher	Price	Cipher	Price
1	2 in.	1½ in.	6 in.	Elfin	11 00	Embay	13 00	Elided	16 50
2	2½ "	1¾ "	6 "	Elfish	12 50	Embrow	15 00	Eliding	18 00
3	3 "	1¾ "	6 "	Elicit	14 50	Embroglio	17 50	Eligible	19 50
4	3½ "	1¾ "	8 "	Elicited	21 50	Embryo	26 50	Eliminate	29 50
5	4 "	2 "	8 "	Elide	22 50	Emolument	30 50	Elision	35 50

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED HAND FORCE PUMP ON PLANK

ADJUSTABLE LEVER AND BRASS PISTON-ROD

UPWARD DISCHARGE

Fig. 509

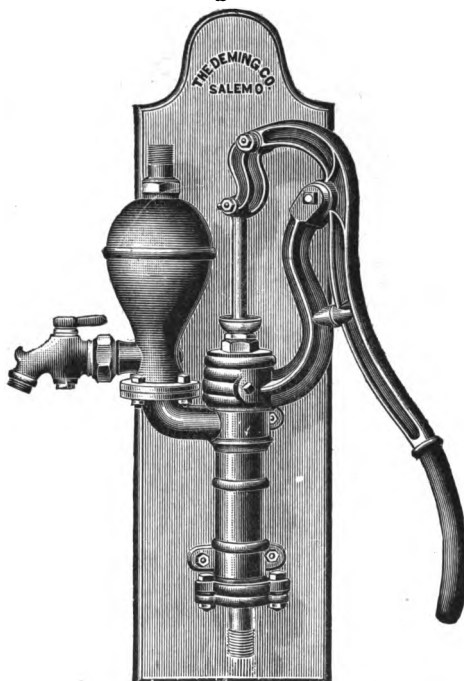


Fig. 509, illustrated by the above cut, is similar to **Fig. 507**, having a spout with Cock threaded for Hose Coupling, which adapts it for using Hose. It differs only from **Fig. 508** by being placed on a plank instead of having a base. It has, in common with all the Hand Force Pumps of this class, a Brass Valve Seat and Coupling for both Lead and Iron Pipe.

To prevent freezing, raise the Lever to its extreme height.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Suction and Discharge Pipe Fitted for	Stroke	IRON		BRASS LINED		BRASS CYL.	
				Cipher	Price	Cipher	Price	Cipher	Price
1	2 inch	1½ inch	6 inch	Elope	11 00	Enate	13 00	Elude	16 50
2	2½ "	1¾ "	6 "	Elopement	12 50	Enchisel	15 00	Eluding	18 00
3	3 "	1¾ "	6 "	Eloquence	14 50	Enchase	17 50	Elusive	19 50
4	3½ "	1¾ "	8 "	Eloquent	21 50	Encloister	26 50	Elusory	29 50
5	4 "	2 "	8 "	Elucidate	22 50	Encrinal	30 50	Elysian	35 50

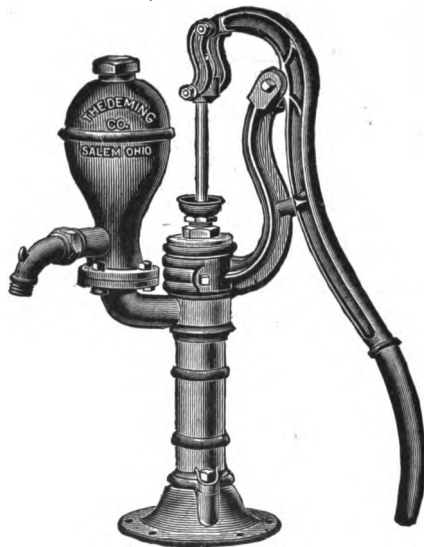
In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

IMPROVED HAND FORCE PUMP,

ON BASE

WITH AIR CHAMBER, ADJUSTABLE LEVER, AND BRASS PISTON-ROD
WITH SPOUT AND TIGHT CAP

Fig. 510



This Pump is similar to Fig. 508, in that it is provided with a spout threaded for hose coupling on side discharge; the spout, however, is without a stop cock, as in Fig. 508; and a tight cap is placed on the upward discharge. If desirable to use the upward discharge, the spout can be removed and the cap placed on the side discharge. This Pump is adapted for both Lead and Iron Pipe, and is provided with Brass Valve Seat. To prevent freezing, the lever should be raised to its extreme height.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Suction and Discharge Fitted for	Stroke	IRON		BRASS LINED		BRASS CYL.	
				Cipher	Price	Cipher	Price	Cipher	Price
1	2 inch.	1½ in. Pipe	6 inch	Embark	9 50	Emergent	11 50	Ember	14 00
2	2½ "	1½ "	6 "	Embarrass	10 00	Emeril	12 50	Embezzle	15 00
3	3 "	1½ "	6 "	Embassy	12 00	Embush	15 00	Emblaze	16 00
4	3½ "	1½ "	8 "	Embed	18 00	Emend	23 00	Emblazon	25 00
5	4 "	2 "	8 "	Embellish	20 50	Emesis	28 50	Emblem	32 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED HAND FORCE PUMP,

ON PLANK

WITH AIR CHAMBER, ADJUSTABLE LEVER, AND BRASS PISTON-ROD
WITH SPOUT AND TIGHT CAP

Fig. 511

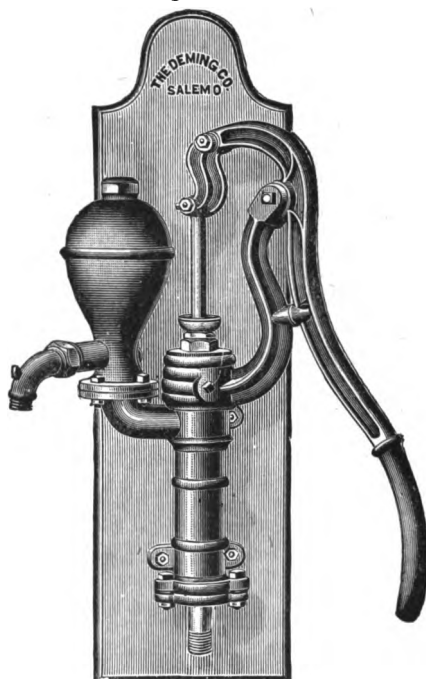


Fig. 511, represented by the above cut, is similar in its essential parts to Fig. 510. It is placed on a plank so that it can be fastened to the wall or to a post. In Fig. 511, the base (as in Fig. 510) is replaced by a flange, bolted to the stock or Cylinder of Pump; this retains the Brass Valve Seat and Lead or Iron Pipe Coupling.

This Pump should not be placed more than twenty-five feet above the water. Freezing is prevented by raising the lever to its extreme height.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

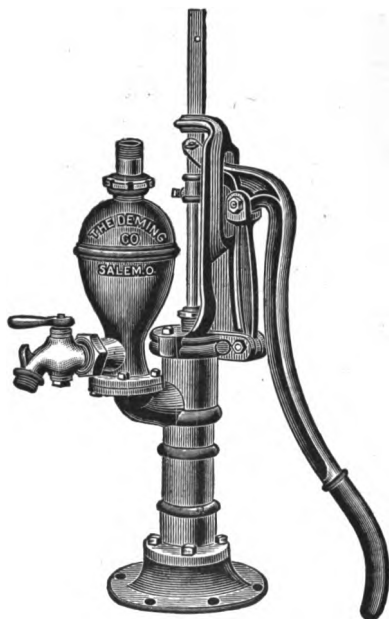
No.	Size Cyl.	Suction and Discharge Fitted for	Stroke	IRON		BRASS LINED		BRASS CYL.	
				Cipher	Price	Cipher	Price	Cipher	Price
1	2 inch	1¼ in. Pipe	6 inch	Emerald	9 50	Emetic	11 50	Eminence	14 00
2	2½ "	1½ "	6 "	Emerge	10 00	Emetine	12 50	Eminent	15 00
3	3 "	1½ "	6 "	Emergency	12 00	Emew	15 00	Eminently	16 00
4	3½ "	1½ "	8 "	Emigrant	18 00	Emicant	23 00	Emissary	25 00
5	4 "	2 "	8 "	Emigrated	20 50	Embow	28 50	Emission	32 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

IMPROVED HAND FORCE PUMP ON BASE

WITH WIND-MILL TOP, AIR CHAMBER AND COCK SPOUT

Fig. 430



This Pump may be used in connection with a Wind-Mill, or wherever power can be applied. It is also arranged for hand, which in many cases will be found convenient. When used in cold climates, freezing may be prevented by raising the Lever to its extreme height, which trips the Valves and allows the water to escape from the Cylinder. Fig. 430 has Brass Valve Seat, Brass Cased Piston-rod, Coupling for Iron Suction Pipe, and Spout threaded for Hose Coupling.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	† Suction and Discharge Pipe Fitted for	Stroke.	IRON		BRASS LINED		* BRASS CYL.	
				Cipher	Price	Cipher	Price	Cipher	Price
2	2½ inch.	1¼ inch.	6 inch.	Enrapture	14 50	Endark	17 00	Enrobing	20 00
3	3 " "	1½ " "	6 " "	Enrich	16 50	Endive	19 00	Enrolled	21 50
4	3½ " "	1½ " "	8 " "	Enriched	24 00	Endoss	27 50	Enseconce	32 00
5	4 " "	2 " "	8 " "	Enrobe	26 00	Endure	30 50	Ensemble	36 50

† Fitted for other sizes of Pipe, but always as listed, unless otherwise ordered.

* The Brass Pumps are all Brass, except Air Chamber, Lever, Fulcrum and Base.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED HAND FORCE PUMP ON PLANK

WITH WIND-MILL TOP, AIR CHAMBER AND COCK SPOUT

Fig. 431

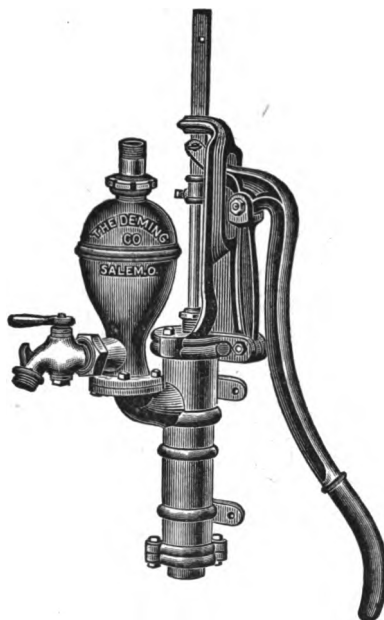


Fig. 431 is identical with Fig. 430 on the opposite page, both in adaptation and construction. It is made with Brackets and bottom attachment instead of Base, and is fastened to a Plank which is always furnished with the Pump, unless ordered without.

The Cylinder being in the stock of Pump makes it necessary to trip the valves by raising the Lever to its full height in order to prevent freezing.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	† Suction and Discharge Pipe Fitted for	Stroke.	IRON		BRASS LINED CYL.		BRASS CYL.	
				Cipher	Price	Cipher	Price	Cipher	Price
2	2½ inch.	1½ inch.	6 inch.	Enslaving	14 50	Enduring	17 00	Entailed	20 00
3	3 " "	1¾ " "	6 " "	Ensnare	16 50	Engraft	19 00	Entailing	21 50
4	3½ " "	1½ " "	8 " "	Ensue	24 00	Engrail	27 50	Entangle	32 00
5	4 " "	2 " "	8 " "	Entail	26 00	Enlard	30 50	Entertain	38 50

† Fitted for other sizes of Pipe, but always as listed, unless otherwise ordered.

↯ The Brass Pumps are all Brass, except Air Chamber, Lever, Fulcrum and Base.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5,

THE "TORRENT" DOUBLE-ACTING FORCE PUMP ON BASE

WITH WIND-MILL TOP

Fig. 480

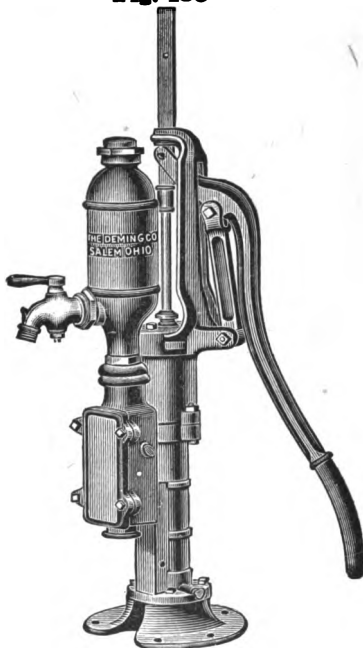


Fig. 480, our new Double-acting Force Pump on Base, the "Torrent," is arranged to operate by hand or attach to Wind Mill or other Power. The peculiar construction and arrangement of the Valves and Water-Ways make it the easiest working and most efficient Double-acting Pump on the market, and its lifting capacity is the greatest of any Pump we manufacture.

The Valves and Seats are made of Brass. The Valves can be removed and replaced by simply detaching the Face Plate of the Valve Case. This Pump is especially adapted for Wind Mill, Factory or Railroad use.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Suction and Discharge Pipe Fitted for	Stroke	IRON		BRASS CYL.		*BRASS	
				Cipher	Price	Cipher	Price	Cipher	Price
2	2½ inch	1¼ inch	6 inch	Entire	25 00	Entire	40 00	Entire	50 00
4	3 " "	1½ " "	6 " "	Entirely	30 00	Entitled	45 00	Entitled	60 00

* In the Brass Pumps all parts coming in contact with the liquid are made entirely of Brass.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE "TORRENT" DOUBLE-ACTING FORCE PUMP ON PLANK

WITH WIND MILL TOP

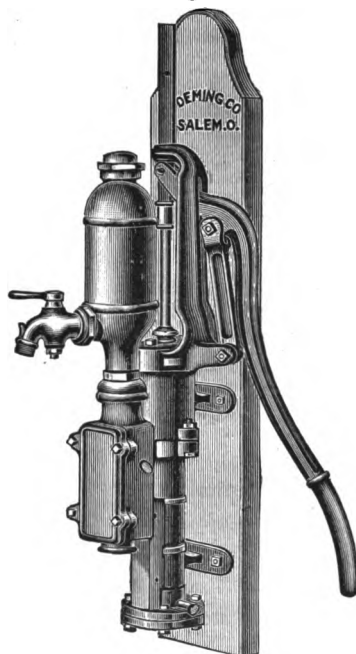
Fig. 481

Fig. 481, "Torrent," Double-acting Force Pump with Brackets, attached to a Plank. In mechanical construction the working parts are identical with **Fig. 480** on the preceding page. As in all our Pumps, parts are made to exact gauges so that repairs will always fit.

Both **Figs. 480 and 481** have Drip-Cocks for draining the Pumps to prevent freezing.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

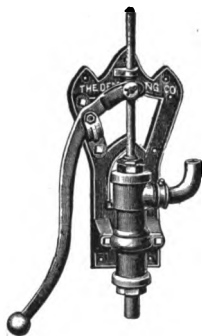
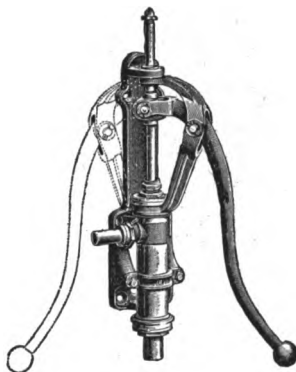
SIZES AND PRICES

No.	Size Cyl.	Suction and Discharge Fitted for	Stroke	IRON		BRASS CYL.		*BRASS	
				Cipher	Price	Cipher	Price	Cipher	Price
2	2½ in.	1¼ inch Pipe	6 in.	Entomic	25 00	Entrails	40 00	Entrap	50 00
4	3 in.	1½ " "	6 "	Entomical	30 00	Entrance	45 00	Entrapped	60 00

*In the Brass Pumps, all parts coming in contact with the liquid are made entirely of Brass.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

“NEW YORK” BRASS LIFT AND FORCE PUMPS ON IRON FRAME

Fig. 558**Fig. 548****Fig. 559**

The Pumps illustrated above are designed for use in Flat and Tenement Buildings where the city water pressure is not sufficient to carry the water to the upper stories at all times. They are usually connected to the regular Plumbing System. When pressure is sufficient water will pass through the Pump without operating them and when pressure is low the water may be lifted with the Pump. Fig. 548 has a Swivel Fulcrum Lever and may be operated at any angle from the Pump. Figs. 558 and 559 have Adjustable Fulcrums and may be used either right or left handed.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig.	Size of Cyl.	Suction Fitted For	Discharge Fitted For	Cipher	Price
558	2 inch	1 inch Lead Pipe	$\frac{3}{4}$ inch Lead Pipe	Exceeded	12 00
548	2 "	1 " " "	$\frac{3}{4}$ " " "	Exchequer	12 00
559	2 "	1 " " "	$\frac{3}{4}$ " " "	Exceeding	16 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED HOUSE FORCE PUMP ON PLANK

RIGHT OR LEFT HANDED. WITHOUT AIR
CHAMBER

Fig. 520

Fig. 520 has a Brass Piston-Rod with Pitman and guide. The Lever is furnished for either right or left hand, but is always arranged right handed, unless otherwise ordered. These Pumps are made with Brass Suction Coupling for Lead or Iron Pipe; they are mounted on a handsome plank and present a fine appearance. **Fig. 520** can be used where the water is not over 25 feet below the Pump Cylinder.

In forcing water a long distance, or to a considerable height, **Figs. 521 and 524** are preferable, as the Air Chamber assists the working of the Pump.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	† Fitted for Suction and Discharge Pipe	Stroke	IRON		BRASS CYL.		* BRASS	
				Cipher	Price	Cipher	Price	Cipher	Price
1	2 in.	1 in.	7 in.	Ephemeral	14 00	Epigraph	18 00	Episcopacy	26 00
2	2½ "	1½ "	7 "	Epidemic	15 00	Epilepsy	20 00	Episcopal	30 00
3	2¾ "	1¾ "	7 "	Epidermal	15 75	Epigraphist	21 00	Episodical	33 00
4	3 "	1¾ "	7 "	Epidemy	16 50	Epileptic	22 00	Episode	35 00
5	3½ "	1¾ "	7 "	Epigene	20 00	Epilogue	25 00	Epistle	40 00
6	3¾ "	1¾ "	7 "	Epigram	22 00	Epiphany	32 00	Epistolize	47 00

† Fitted for other sizes Pipe, but always as listed, unless otherwise ordered.

* The Brass Pumps are all Brass, except Lever, Fulcrum, Rod Guide and Discharge Funnel. Furnished with Metallic Valves, for pumping hot water when so ordered, at an additional cost. Furnished without plank at \$1.00 less list.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

IMPROVED HOUSE FORCE PUMP ON PLANK

RIGHT OR LEFT HANDED, WITH AIR
CHAMBER. UPWARD DISCHARGE

Fig. 521

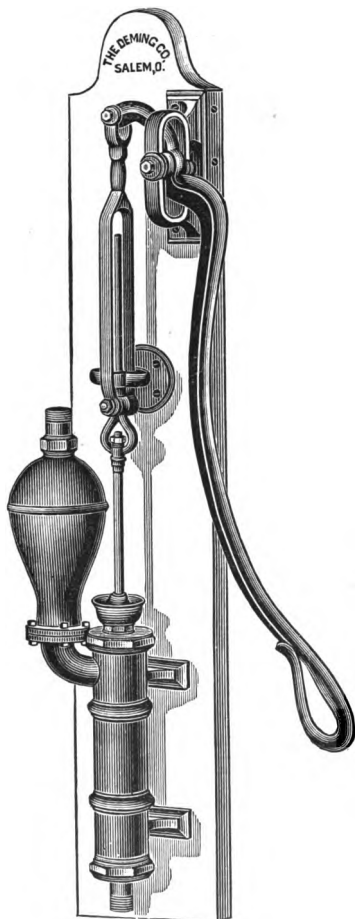


Fig. 521 is the same in construction as Fig. 520, with the addition of an Air Chamber with upward discharge. In forcing to a great height, the Air Chamber is an advantage, as it assists the working of the Pump, and causes the discharge of a steady and continuous stream of water, relieving the Pump of any sudden strain or concussion.

Fig. 521 is a popular style of Pump for house plumbing jobs, where a discharge to the Tank only is necessary. It is furnished with Brass Valve Seat, and fitted for both Lead and Iron Pipe.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	† Fitted for Suction and Discharge Pipe	Stroke	IRON		BRASS CYL.		*BRASS	
				Cipher	Price	Cipher	Price	Cipher	Price
1	2 inch	1 inch	7 inch	Epithet	16 00	Equable	21 00	Equation	28 00
2	2½ "	1½ "	7 "	Epitome	17 00	Equal	23 00	Equator	32 00
3	2½ "	1½ "	7 "	Epitrite	17 75	Equally	24 00	Equerry	35 00
4	3 "	1½ "	7 "	Epitomist	18 50	Equality	25 00	Equatorial	37 00
5	3½ "	1½ "	7 "	Epitomize	23 00	Equalize	28 00	Equestrian	43 00
6	3½ "	1½ "	7 "	Epizootic	25 00	Equate	35 00	Equiform	50 00

† Fitted for other sizes Pipe, but always as listed, unless otherwise ordered.

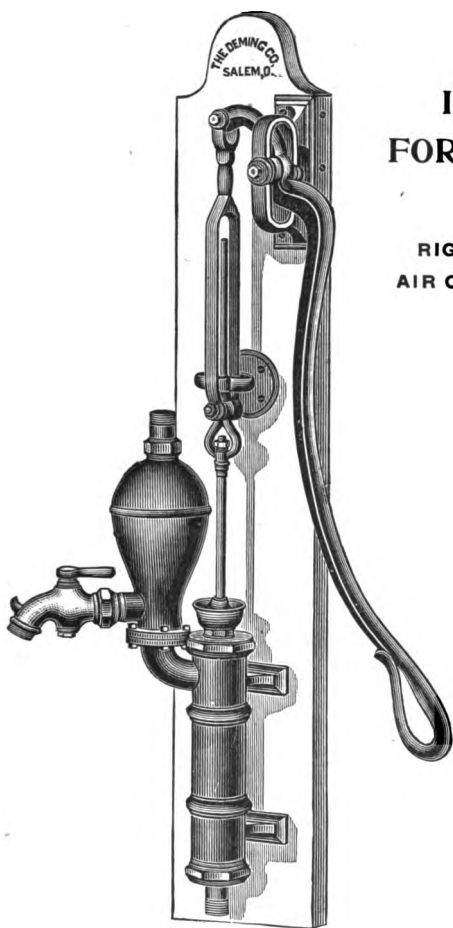
* The Brass Pumps are all Brass, except Lever, Fulcrum, Rod Guide and Air Chamber. Brass Air Chamber furnished for additional cost of material only. Furnished with Metallic Valves for pumping hot water, when so ordered, at an additional cost. Furnished without plank at \$1.00 less list.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED HOUSE FORCE PUMP ON PLANK

RIGHT OR LEFT HANDED, WITH
AIR CHAMBER. DOUBLE DISCHARGE

Fig. 524



This Pump is in all respects the same as Fig. 521, with the exception that a **Cock Spout** for side discharge is added. The water in the Tank may be drawn direct therefrom by means of the Cock, and when using the Cock Spout for pumping direct, the upward discharge may be cut off by a Service Cock above the Air Chamber.

Furnished with Brass Valve Seat and Brass Coupling below the Base for both Lead and Iron Pipe.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	†Suction and Discharge Fitted for	Stroke	IRON		BRASS CYL.		*BRASS	
				Cipher	Price	Cipher	Price	Cipher	Price
1	2 in.	1 in. Pipe	7 in.	Erect	18 50	Ermine	23 50	Erudite	33 00
2	2½ "	1½ " "	7 "	Erected	19 50	Erotic	25 50	Erudition	37 00
3	3½ "	1½ " "	7 "	Erecting	20 25	Erotical	26 50	Eruditely	40 00
4	3 "	1½ " "	7 "	Erection	21 00	Errand	27 50	Eruption	42 00
5	3½ "	1½ " "	7 "	Erector	25 50	Errantry	30 50	Eruptive	48 00
6	3½ "	1½ " "	7 "	Ergot	27 50	Erratic	37 50	Escalop	55 00

† Fitted for other size Suction and Discharge Pipe, but always as listed unless otherwise specified.

* The Brass Pumps are all Brass, except Lever, Fulcrum, Rod Guide, Air Chamber and Cock. Furnished with Metallic Valves for pumping hot water, when so ordered, at an additional cost. Brass Air Chamber and Brass Cock furnished, when ordered, at an additional cost. Fig. 524, without plank, \$1.00 less list.

Fig. 524, without Cock Spout, Straight Discharge, \$1.50 less list.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

DOUBLE-ACTING HOUSE FORCE PUMP ON PLANK

RIGHT OR LEFT HANDED. WITHOUT AIR
CHAMBER

Fig. 541

Fig. 541 is a Double-acting Suction and Force Pump without Air Chamber. It is mounted on a Plank and has a Reversible Lever and Fulcrum, so that it can be changed from right to left hand. It is an excellent Pump for use where a continuous stream of water is required. **Fig. 542**, shown on the next page, is, on account of having an Air Chamber, better adapted for forcing the water to a great distance.

In ordering Pump with Metallic Valves, by telegraph, the Cipher word for the complete Pump, should be written (for Iron or Brass Cylinder), then the Cipher word for Metallic Valves.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

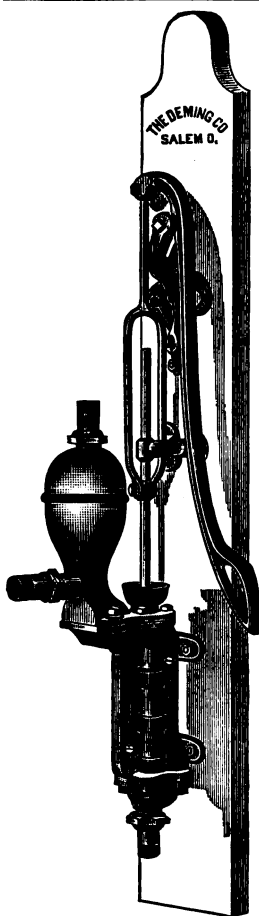
SIZES AND PRICES

No.	Size Cyl.	†Suction and Discharge Pipe Fitted for	Stroke	IRON		BRASS CYL.		*METALLIC VALVES FOR IRON OR BRASS CYL.	
				Cipher	Price	Cipher	Price	Cipher	Net extra
1	2½ inch	1½ inch	7 inch	Escapade	14 00	Esquire	24 00	Estrange	1 75
2	2½ "	1½ "	7 "	Eschew	17 60	Essayist	29 00	Etcher	2 25
3	3 "	1½ "	7 "	Escort	21 00	Essence	40 00	Etching	3 00
4	3½ "	2 "	7 "	Escritoire	25 00	Establish	69 50	Eternal	4 25
5	4 "	2 "	7 "	Espionage	37 00	Esteem	94 00	Eternity	6 00
6	4½ "	2½ "	7 "	Esposual	50 00	Esteemed	136 00	Ethereal	8 00

†Fitted for other sizes Suction and Discharge Pipe, but always as listed, unless otherwise ordered.

*The Metallic Valves are necessary where the Pump is used for hot water. The prices given for Metallic Valves are net extra over net price of either the Iron or Brass Cylinder Pumps. **Fig. 541**, without plank, \$1 00 less list.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.



DOUBLE-ACTING HOUSE FORCE PUMP ON PLANK

RIGHT OR LEFT HANDED. WITH AIR CHAMBER
DOUBLE DISCHARGE

Fig. 542

Fig. 542 is the same as Fig. 541, on the preceding page, with double discharge Air Chamber added. The Air Chamber is an assistance in working the Pump, where the water is forced through Hose or to a great distance. Brass Cylinder Pumps will be furnished with Brass Air Chamber when specially ordered, at a price to cover the additional cost of the material only.

The Metallic Valves are necessary where the Pump is to be used for hot water.

In ordering Pump with Metallic Valves by telegraph, the Cipher word for the complete Pump should be written (for Iron or Brass Cylinder), then the Cipher word for Metallic Valves.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	† Suction and Discharge Fitted for	Stroke	IRON		BRASS CYLINDER		*METALLIC VALVES FOR IRON OR BRASS CYLINDER	
				Cipher	Price	Cipher	Price	Cipher	Net extra
1	2¼ in.	1¼ inch Pipe	7 inch	Etherize	16 00	Etymology	26 00	Euphonic	1 75
2	2½ "	1½ "	7 "	Ethical	19 00	Eucharist	31 00	European	2 25
3	3 "	1½ "	7 "	Ethics	23 50	Euchre	42 00	Euterpe	3 00
4	3½ "	2 "	7 "	Ethnology	28 50	Eulogize	73 00	Euterpean	4 25
5	4 "	2 "	7 "	Etiquette	42 00	Eulogy	98 00	Evacuate	6 00
6	4½ "	2½ "	7 "	Etruscan	55 00	Euphony	141 00	Evade	8 00

† Fitted for other sizes of Suction and Discharge Pipe, but always as listed, unless otherwise ordered.

* Prices given for Metallic Valves are net extra, over net price of either Iron or Brass Cylinder Pumps.

Fig. 542, without side discharge on Air Chamber, at same price. Without plank, \$1.00 less list.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE "PARAGON" TWO-CYLINDER BRASS FORCE PUMP

**FOR HOUSE, SHIP AND FACTORY USE
UPWARD DISCHARGE**



Fig. 612

Fig. 612 represents a Two-Cylinder Double-acting Pump. The Cylinders, Air Chamber, Piston-rods and all other working parts of the Pump are made of Brass.

This Pump, for House use, can be placed under the Sink, out of the way; and is a favorite Pump for domestic purposes.

To prevent freezing, Drip-Cocks are provided, so that the water can be drained off in cold weather.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	* Suction Pipe Fitted for	* Discharge Pipe Fitted for	Capacity per Revolution	Cipher	Price
1	2 inch	1½ inch	1 inch	.2 gallon	Excelled	25 00
2	2½ "	1¾ "	1¼ "	.3 "	Excelling	35 00
3	3 "	2 "	1½ "	.5 "	Exception	45 00

* Fitted for either Lead or Iron Pipe, as ordered. Fitted for other sizes Suction and Discharge Pipe, but always as listed, unless otherwise specified.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE "ACME"

DOUBLE-ACTING BRASS FORCE PUMP

WITH AIR CHAMBER AND DOUBLE DISCHARGE

Fig. 607

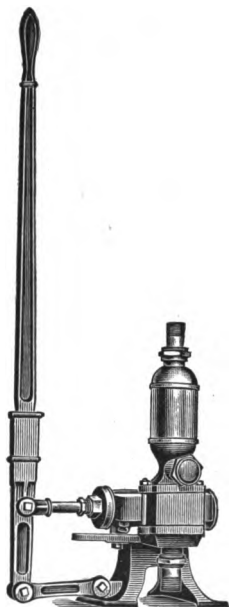


Fig. 607, our "Acme" Double-acting Brass Force Pump, is what its name indicates, the height of perfection, both in construction and design. Fig. 607 is particularly useful as a House Force Pump, Deck Pump, Fire Pump and for other purposes to which a Pump of this class is adapted. It is brass except the Base, Lever and Link.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	*Suction Pipe Fitted for	*Discharge Pipe Fitted for	Stroke	Cipher	Price
1	2½ in.	1¼ in.	1 in.	4 in.	Fabricate	30 00
2	3 "	1½ "	1¼ "	4 "	Fabulous	35 00

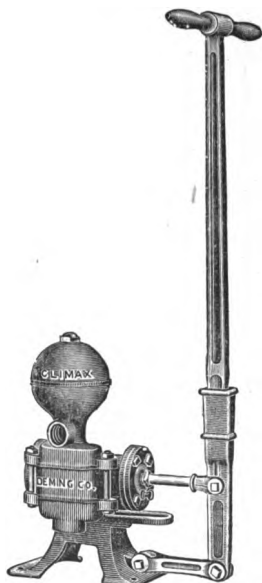
* Fitted for other sizes Suction and Discharge Iron Pipe, Lead Pipe or Hose, but always for Iron Pipe, as listed, unless otherwise ordered.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE "CLIMAX" DOUBLE-ACTING FORCE PUMP

WITH AIR CHAMBER AND ADJUSTABLE LEVER
SIDE DISCHARGE

Fig. 608



Our "Climax" Double-acting Horizontal Force Pump is constructed of Iron, with Brass Valves and Valve Seats; and is neat, compact and substantial. It can be used as a House Force Pump, Deck Pump or Fire Pump.

The cut represents the new style as now made, with bolted cylinder heads. The old style has screwed cylinder heads or attachments. This point should be remembered in ordering repairs.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	*Suction Pipe Fitted for	*Discharge Pipe Fitted for	Stroke	IRON		BRASS LINED CYL.	
					Cipher	Price	Cipher	Price
1	2½ in.	1¼ in.	1 in.	4 in.	Fable	16 00	Fabulist	18 00
2	3 "	1½ "	1¼ "	4 "	Fabric	18 00	Fabulize	21 00

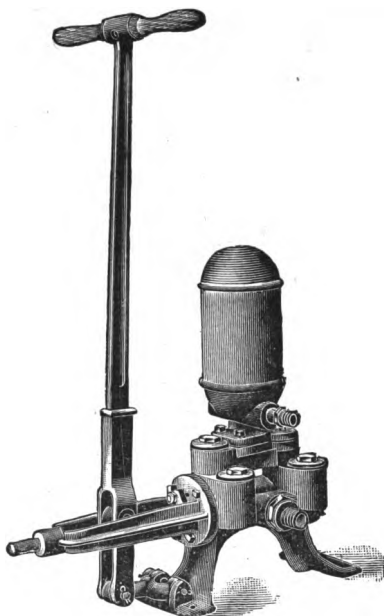
* Fitted for other sizes Suction and Discharge Iron Pipe, Lead Pipe or Hose, but always as listed for Iron Pipe, unless otherwise ordered.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE "NEPTUNE" DOUBLE-ACTING FORCE PUMP

**BRASS-LINED CYLINDER AND BRASS PLUNGER, RUBBER BALL VALVES
AND GUIDED BRASS PISTON ROD**

Fig. 611



The above cut represents the "Neptune" Double-Acting Force Pump, designated as **Fig. 611**. This Pump has some new features which should give it a large sale for use as a House Tank Supply Pump, also for use in Mines, Factories, Vessels, etc. It is symmetrical in design, and convenient in every way. We can recommend the "Neptune" as the best Pump of its kind.

The principal advantageous features of this Pump are the Guided Piston Rod, the accessibility of the Valves, and the Large Air Chamber space. The Suction and Discharge Valves may be examined by simply removing the caps on top of the Valve Chambers, as will be seen by the cut.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cylinder	Suction Fitted for Pipe	Discharge Fitted for Pipe	Stroke	Cipher	Price Each
1	2½ Inches	1¼ Inches	1 Inch	4½ Inches	Finger	20 00
2	3 " "	1½ " "	1¼ " "	4½ " "	Fingering	23 00
3	3½ " "	2 " "	1½ " "	4½ " "	Finical	26 00

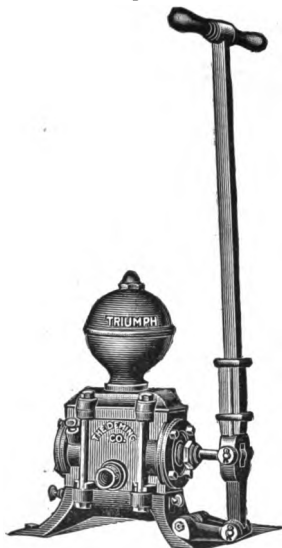
Fitted for Iron Pipe as listed, but will be fitted for Lead Pipe or Hose when so ordered. The Suction and Discharge will be fitted for other sizes when so ordered.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE "TRIUMPH" DOUBLE-ACTING FORCE PUMP

WITH BRASS-LINED CYLINDER

Fig. 601



This pump is extensively used in Factories, Warehouses, Vessels, etc., for general purposes and for fire protection. As a boiler Test Pump, Fig. 601 will also do excellent service. The Cylinder is brass-lined, and the Valves, Valve Seats and Piston-rod are made of Bronze.

Brass plugs or drip cocks are provided at each end of the bed plate to prevent freezing; also, a similar plug is attached to side of Cylinder, for priming the Pump when necessary. The Upper Valves may be reached by lifting off the Air Chamber. The Lower Valves may then be reached by removing the Cylinder or body of the Pump.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Diam. Cyl.	FITTED FOR PIPE		Stroke	BRASS-LINED		BRASS CYLINDER		† BRASS	
		*Suction	*Discharge		Cipher	Price	Cipher	Price	Cipher	Price
1	2½ inch	1½ inch	1 inch	4½ in.	Facade	27 00	Facing	55 00	Facet	75 00
2	3 "	1½ "	1 "	4½ "	Facetious	28 00	Faction	55 00	Facette	75 00
3	4 "	1½ "	1½ "	4½ "	Facial	30 00	Faculty	60 00	Facient	90 00
4	5 "	2 "	1½ "	5 "	Facility	40 00	Fading	90 00	Facile	150 00

* Fitted for Iron Pipe as listed, but will be fitted for Lead Pipe or Hose when so ordered. Furnished with flat Air Chamber at same prices when so ordered.

† All Brass except Levers, Links and Bolts.

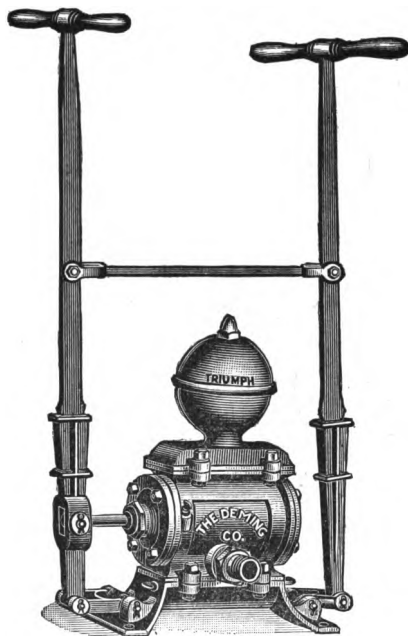
With Brass Spring Piston, Nos. 1 and 2, \$3.00; No. 3, \$4.00, and No. 4, \$6.00, extra list. In telegraphic orders, add the word "Spring" to the Cipher word when Brass Spring Piston is wanted.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE "TRIUMPH" DOUBLE-ACTING FORCE PUMP

WITH BRASS-LINED CYLINDER

Fig. 602



This Pump will be found a very useful one in Factories, Vessels, Warehouses and other places where large quantities of water are to be elevated. The Cylinder is Brass-lined, and the Valves, Valve Seats and Piston-rod are made of Bronze. Provided with Drip-Cocks for priming and to prevent freezing.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Diam. Cyl.	FITTED FOR PIPE		Stroke	BRASS-LINED		BRASS CYLINDER		† BRASS	
		*Suction	*Discharge		Cipher	Price	Cipher	Price	Cipher	Price
4	5 inch	2 inch	1½ inch	5 inch	Fagging	45 00	Failing	95 00	Factum	155 00
5	6 "	2½ "	2 "	5 "	Fagot	55 00	Fainted	125 00	Factual	195 00

*Fitted for Iron Pipe as listed, but will be fitted for Lead Pipe or Hose when so ordered. Furnished with flat Air Chamber at same prices when so ordered.

† All Brass except Levers, Links and Bolts.

With Brass Spring Piston, No. 4, \$6.00, and No 5, \$8.00, extra list. In telegraphic orders, add the word "Spring" to the Cipher word when Brass Spring Piston is wanted.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE "IDEAL" DOUBLE-ACTING OSCILLATING FORCE PUMP

WITH BRASS WING PISTON, BRASS VALVES AND VALVE BOX

Fig. 570

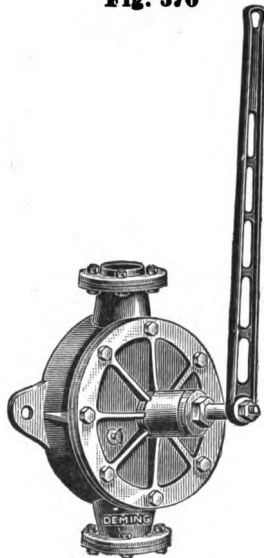


Fig. 570 is simple, substantial, durable and powerful; its construction being such as to cause a minimum of friction, thus making it very effective as a Hand Force Pump.

The Pump Lever may be worked from either a vertical or horizontal position. The Shaft or Piston-rod passes through the hub in center of Cylinder Cap, and is provided with a suitable stuffing-box.

These Wing-Valve Pumps, having no leather packing, are well suited to pumping Hot Liquids, Oils, Wine, Cider, etc. The Suction and Discharge Flanges are fitted for the same size of Pipe. We take the greatest pains in the construction of these Pumps, all parts being made to exact Templets and Gauges, so that repairs will always fit.

To give the best results, the "Ideal" Pumps should not be placed more than 20 feet above the water. A Foot Valve on the end of Suction Pipe may be used to advantage.

These Pumps are largely used in Flat Buildings, connecting them to the plumbing where city water will not always reach the upper stories. For such duty we recommend the All Brass Pump.

SIZES AND PRICES

No.	Suction and Discharge Flanges Fitted for	Outside Diameter of Cyl.	Inside Diameter of Cyl.	Approximate Capacity per Minute	IRON BRASS FITTED		* BRASS	
					Cipher	Price	Cipher	Price
0	½ inch Pipe	5½ inch	4½ inch	4 Gal.	Gabled	8 00	Gargled	16 00
1	¾ " "	6½ " "	4¾ " "	5 " "	Gadded	9 50	Garlanded	20 00
2	1 " "	7½ " "	5½ " "	6 " "	Gainsaid	11 00	Garmented	27 50
3	1¼ " "	9 " "	6¾ " "	9 " "	Gallantly	13 00	Garnished	35 00
4	1½ " "	10¼ " "	7¾ " "	13 " "	Galled	16 00	Gasing	42 50
5	1¾ " "	11½ " "	8¾ " "	19 " "	Galleries	20 00	Gassy	50 00
6	2 " "	12½ " "	9¾ " "	22 " "	Galloped	23 50	Gathering	60 00
7	2½ " "	13½ " "	10¾ " "	26 " "	Gamboled	27 50	Gauging	70 00
8	3 " "	14½ " "	11¾ " "	36 " "	Gaming	40 00	Gazed	90 00

* All Brass except Lever and Suction and Discharge Flanges.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE "IDEAL"

DOUBLE-ACTING OSCILLATING FORCE PUMP

WITH BRASS WING PISTON, BRASS VALVES AND VALVE BOX

Fig. 572

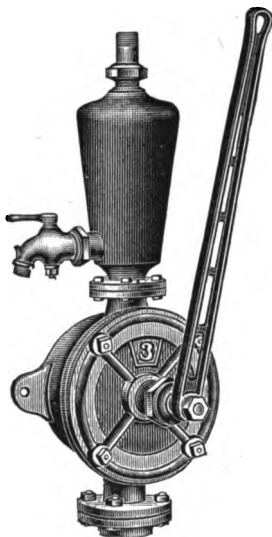


Fig. 572 is made with an Air Chamber and Cock Spout—in other respects it is the same as Fig. 570. The Air Chamber and Cock Spout will be found of advantage when elevating water any great distance above the Pump. For House Tank service, it is especially adapted.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16,

SIZES AND PRICES

No.	Suction and Discharge Flanges Fitted for Pipe	Outside Diam. of Cyl.	Inside Diam. of Cyl.	Approximate Capacity per Minute	IRON BRASS FITTED		*BRASS	
					Cipher	Price	Cipher	Price
0	½ inch	5½ inch	4¾ inch	4 gal.	Grumose	11 00	Gumbo	19 00
1	¾ " "	6½ " "	4¾ " "	5 " "	Grundel	12 50	Gumcistus	23 00
2	1 " "	7½ " "	5½ " "	6 " "	Guber	14 00	Gumption	30 50
3	1¼ " "	9 " "	6¾ " "	9 " "	Gazing	17 00	Genuinely	39 00
4	1½ " "	10¼ " "	7¼ " "	13 " "	Gelatinous	20 00	Geographic	46 50
5	1¾ " "	11½ " "	8¾ " "	19 " "	Generality	25 00	Geologic	53 00
6	2 " "	12½ " "	9¾ " "	22 " "	Generation	28 50	Geometrical	65 00
7	2¼ " "	13½ " "	10¾ " "	26 " "	Generosity	33 50	Gesturing	76 00
8	2½ " "	14½ " "	11¾ " "	36 " "	Geniality	46 00	Gingerly	96 00

* All Brass, except Lever, Suction Flange and Air Chamber.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE "IDEAL"

DOUBLE-ACTING OSCILLATING FORCE PUMP

WITH BRASS WING PISTON, BRASS VALVES AND VALVE BOX

Fig. 670

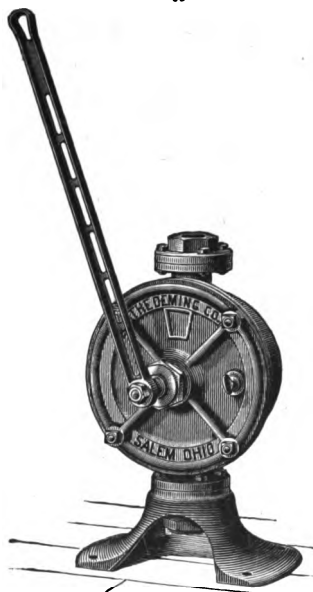


Fig. 670, with the addition of a Base, is the same as Fig. 570 and is adapted for the same class of service. All working parts are made of Brass and is Metallic fitted throughout. Suitable for Hot or Cold Water, Wine, Beer or other Liquids.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Suction and Discharge Flanges Fitted for Pipe	Outside Diam. of Cyl.	Inside Diam. of Cyl.	Approx. Capacity per Minute	IRON BRASS FITTED		*BRASS	
					Cipher	Price	Cipher	Price
0	$\frac{1}{2}$ inch	$5\frac{1}{2}$ inch	$4\frac{1}{2}$ inch	4 Gal.	Gadfly	9 00	Gelding	17 00
1	$\frac{3}{4}$ "	6 $\frac{1}{2}$ "	4 $\frac{3}{4}$ "	5 "	Gagging	10 50	Geminate	21 00
2	1 "	7 $\frac{3}{4}$ "	5 $\frac{1}{2}$ "	6 "	Galiot	12 00	Geranium	23 50
3	1 $\frac{1}{4}$ "	9 "	6 $\frac{1}{2}$ "	9 "	Gamut	14 00	Ghostly	36 00
4	1 $\frac{3}{8}$ "	10 $\frac{1}{2}$ "	7 $\frac{1}{4}$ "	13 "	Garbage	17 00	Gladstone	44 00
5	1 $\frac{1}{2}$ "	11 $\frac{1}{2}$ "	8 $\frac{1}{4}$ "	19 "	Gardener	21 00	Gliding	52 50
6	1 $\frac{3}{4}$ "	12 $\frac{1}{2}$ "	9 $\frac{1}{4}$ "	22 "	Gauffer	25 00	Governess	62 50
7	2 "	13 $\frac{1}{2}$ "	10 $\frac{1}{2}$ "	26 "	Gazelle	30 00	Grammar	72 50
8	2 $\frac{1}{4}$ "	14 $\frac{1}{2}$ "	11 $\frac{1}{2}$ "	36 "	Gehenna	42 50	Granite	92 50

* All Brass except Base. Lever and Discharge Flange.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE "IDEAL"

DOUBLE-ACTING OSCILLATING FORCE PUMP

WITH BRASS WING PISTON, BRASS VALVES AND VALVE BOX

Fig. 672

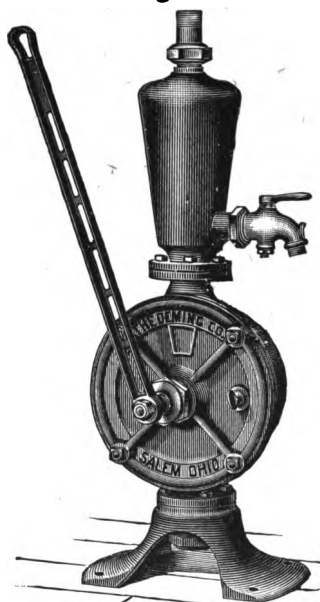


Fig. 672, with Air Chamber and Cock Spout, is especially adapted to House and Factory service, elevating water and other liquids into tanks, etc. All working parts are Brass and Metallic fitted throughout, suitable for hot or cold water.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

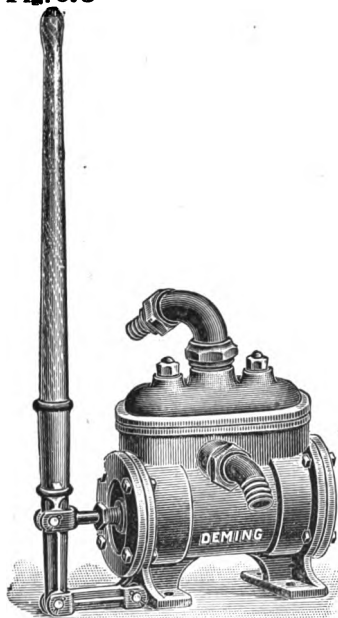
No.	Suction and Discharge Flanges Fitted for	Outside Diam. of Cyl.	Inside Diam. of Cyl.	Approximate Capacity per Minute	IRON BRASS FITTED		*BRASS	
					Cipher	Price	Cipher	Price
0	½ inch Pipe	5½ inch	4½ inch	4 gal.	Granting	12 00	Gormand	20 00
1	¾ " "	6½ " "	4¾ " "	5 " "	Grapnel	13 50	Gossoon	24 00
2	1 " "	7½ " "	5½ " "	6 " "	Gratitude	15 00	Gowan	31 50
3	1¼ " "	9 " "	6½ " "	9 " "	Galore	18 00	Gozzard	40 00
4	1½ " "	10½ " "	7½ " "	13 " "	Ganoid	21 00	Grabble	48 00
5	1¾ " "	11½ " "	8¾ " "	19 " "	Godroon	26 00	Granular	57 50
6	2 " "	12½ " "	9¾ " "	22 " "	Goffer	30 00	Grayling	67 50
7	2¼ " "	13½ " "	10¾ " "	28 " "	Gonfalon	36 00	Grazier	78 50
8	2½ " "	14½ " "	11¾ " "	38 " "	Gorgon	48 50	Grenade	98 50

*All Brass except Base, Lever and Air Chamber.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE "AJAX" DOUBLE-ACTING THRESHER TANK PUMP

Fig. 673



The "Ajax" Thresher Tank Pump has been designed to satisfy a demand for a good, low price Tank Pump. Many features make the "Ajax" the best Thresher Tank Pump manufactured. For lightness, strength and durability it cannot be excelled. All these qualities make this Pump very easy of operation, giving it a maximum of capacity for power required to operate it. The Valves are more easily gotten at than in any other Pump. This is an excellent feature, but one that is often overlooked. The "Ajax" is especially adapted for use on Thresher Tanks, and in places where a hand Pump of large capacity is required. It can be used for draining Cellars and Coal Mines, and will be found very useful as a Hand Irrigation Pump.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig. 673	Cylinder 5 in. Diam.	*Suction 2 in. Hose	*Discharge 1 in. Hose	Stroke 5 inch	Capacity per Rev. ¾ Gal.	Cipher	Price
Pump Only	Includes Suction Strainer, Suction and Discharge Hose Couplings.					Finny	18 00
Outfit A	Pump complete, with 15 feet of 2-inch Spiral-Wire Suction Hose and Strainer; 12½ feet of 1-inch 3-ply Discharge Hose and Nozzle.					Fipple	40 00
Outfit A A	Same as Outfit "A," less Discharge Hose and Nozzle.					Firefly	35 00
Outfit B	Pump complete, with 20 feet of 2-inch Spiral-Wire Suction Hose and Strainer; 12½ feet of 1-inch Discharge Hose and Nozzle.					Firkin	45 00
Outfit B B	Same as Outfit "B," less Discharge Hose and Nozzle.					Firlot	40 00
Outfit C	Pump complete, with 25 feet of 2-inch Spiral-Wire Suction Hose and Strainer; 12½ feet of 1-inch 3-ply Discharge Hose and Nozzle.					Fishery	50 00
Outfit C C	Same as Outfit "C," less Discharge Hose and Nozzle.					Fishing	45 00
Outfit D	Pump complete, with 25 feet of 2-inch Spiral-Wire Suction Hose and Strainer; 25 feet of 1-inch 3-ply Discharge Hose and Nozzle.					Fistic	54 00

*Disconnecting the Suction Coupling and the Discharge Spout adapts this Pump for 2½ and 2 inch Iron Pipe for suction and discharge respectively.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE "GIANT" DOUBLE-ACTING FORCE PUMP

FOR THRESHER TANKS AND GENERAL USE

Fig. 554

The "Giant" Pump will satisfy the demand of Threshermen and others who desire a Pump to handle a great quantity of water in a limited time. Its capacity is two barrels of water per minute. It will lift water 25 feet and discharge it horizontally a distance limited only by the power of the operator. It is a good Fire Pump; will be found useful in Coal Mines, for Contractors' work and as an Irrigating Pump.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig. 554	Cylinder	*Suction	*Discharge	Stroke	Capacity per Rev.	Cipher	Price
	5 in. diam.	2 in hose	1 in hose	5 inch	$\frac{7}{8}$ gal.		
Pump Only	Includes suction strainer, suction and discharge hose couplings.					Falcade	18 00
Outfit A	Pump complete, with 15 feet of 2 inch spiral-wire suction hose and strainer; 12 $\frac{1}{4}$ feet of 1 inch 3-ply discharge hose and nozzle.					Faldage	40 00
Outfit A A	Same as Outfit "A," less discharge hose and nozzle.					Fallow	35 00
Outfit B	Pump complete, with 20 feet of 2 inch spiral-wire suction hose and strainer; 12 $\frac{1}{4}$ feet of 1 inch discharge hose and nozzle.					Falsehood	45 00
Outfit B B	Same as Outfit "B," less discharge hose and nozzle.					Famble	40 00
Outfit C	Pump complete, with 25 feet of 2 inch spiral-wire suction hose and strainer; 12 $\frac{1}{4}$ feet of 1 inch 3-ply discharge hose and nozzle.					Famously	50 00
Outfit C C	Same as Outfit "C," less discharge hose and nozzle.					Fancying	45 00
Outfit D	Pump complete, with 25 feet of 2 inch spiral-wire suction hose and strainer; 25 feet of 1 inch 3-ply discharge hose and nozzle.					Fangle	54 00

*Disconnecting the suction coupling and the discharge spout adapts this Pump for 2 $\frac{1}{2}$ and 2 inch iron Pipe for suction and discharge respectively.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE "TORRENT" TWO-CYLINDER THRESHER TANK PUMP

WITH HOSE COUPLINGS

Fig. 553



Our celebrated "Torrent" Thresher Tank Pump is known everywhere as the original and best Thresher Pump on the market. Many makers have tried to copy it, none have equaled it in design or efficiency. In capacity this Pump represents the limit in quantity of water that may be delivered without over-exertion when operated by one person. Larger Pumps offered to the trade by other makers have failed to satisfy the demand for this reason.

It is designed for the use of Threshermen in filling their Wagon Tanks quickly with water, for the purpose of supplying the Steam Engine Boiler.

This Pump may also be used as a Bilge and Deck Pump on small vessels, or in any place where it is desired to remove water from, such as Cellars, Ditches, etc. It is durable and simple in construction, and the easiest working Pump ever made. The "Torrent" may be used for cleaning out the Boiler Flues; also as a Fire Pump. No extension is necessary to the top of Tank, since the Suction Coupling projects beyond the base of the Pump.

We furnish Fig. 553 complete with Suction and Discharge Hose Couplings; also with Suction Strainer in connection with various lengths of Hose, etc., as listed below. It may be used to discharge upward through 2 inch Pipe by screwing the tight cap on end of Spout in place of Hose coupling.

To prevent freezing, throw the Lever to the extreme end of the stroke on both cylinders, which trips the valves. Rest the Lever until the Pump takes air through the spout.

SIZES AND PRICES

Fig. 553	Cyl.	Suction	Discharge	Stroke	Capacity per Rev.	Cipher	Price
	4½ inch	2 in. hose	1 in. hose	4 inch	.55 gal.		
Pump Only	Includes suction strainer, suction and discharge hose couplings.					Financial	18 00
Outfit A	Pump complete, with 15 feet of 2 in. spiral-wire suction hose and strainer; 12½ feet of 1 in. 3-ply discharge hose and nozzle.					Financier	40 00
Outfit A A	Same as Outfit "A," less discharge hose and nozzle.					Fanning	35 00
Outfit B	Pump complete, with 20 feet of 2 in. spiral-wire suction hose and strainer; 12½ feet of 1 in. discharge hose and nozzle.					Finch	45 00
Outfit B B	Same as Outfit "B," less discharge hose and nozzle.					Farming	40 00
Outfit C	Pump complete, with 25 feet of 2 in. spiral-wire suction hose and strainer; 12½ feet of 1 in. 3-ply discharge hose and nozzle.					Finched	50 00
Outfit C C	Same as Outfit "C," less discharge hose and nozzle.					Farthing	45 00
Outfit D	Pump complete, with 25 feet of 2 in. spiral-wire suction hose and strainer; 25 feet of 1 inch 3-ply discharge hose and nozzle.					Finding	54 00

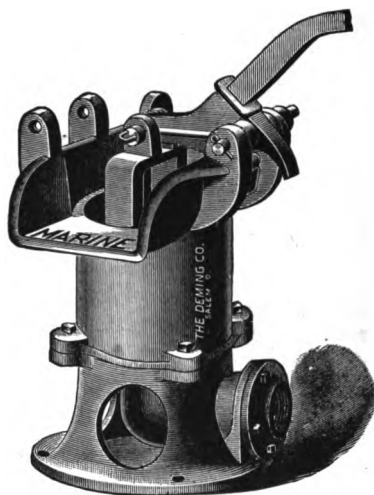
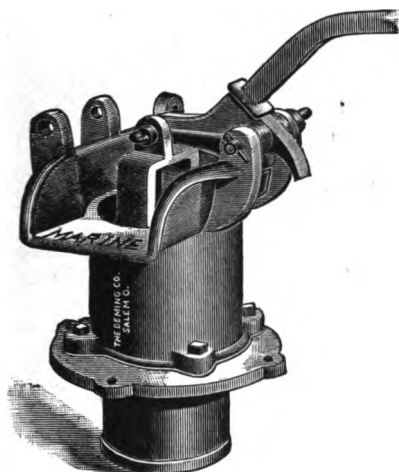
N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE "MARINE" BILGE PUMPS

WITH REVERSIBLE LEVERS

Fig. 470—Bottom Suction

Fig. 471—Side Suction



These Pumps are adapted for raising large quantities of water by hand from the bilge well of Vessels, from Stone Quarries and Coal Mines, Cellars and Ditches, and for Irrigating purposes, where the water is not over 20 feet vertically from the Pump. They are much used by contractors in removing water from excavations of various kinds.

There are three Fulcrums, as shown by the lugs on the engraving, whereby the Pump may be operated with the lever in any one of three positions. The Lever is substantially constructed of Wrought Iron, bent, so that its position may be reversed in the socket and thus it becomes a vertical lever which, in some instances, will be found quite convenient.

The Valves are Rubber faced and are made large so as to give ample water way. They are easily removed for repairing. The Cylinder is Brass lined. A Flange, threaded for suction pipe, is bolted to the Base of the Pump. At a slight additional cost, we fit these Pumps, when ordered, for suction hose.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

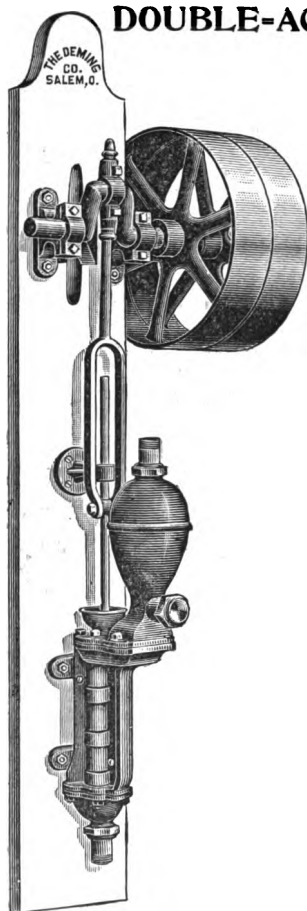
SIZES AND PRICES

No.	Diameter of Cyl.	†Suction Fitted for	Length of Stroke	Capacity per Stroke	Fig. 470		Fig. 471	
					Cipher	Price	Cipher	Price
2	6 inches	3 inch Pipe	4 inches	.49 gals.	Gracing	23 00	Gracing	28 00
4	8½ "	4 " "	6 " "	1.47 "	Gracefully	80 00	Graciously	85 00

† The Suction may be fitted for other sizes of Pipe, but is always fitted as listed, unless otherwise ordered.

Suction Hose Nipples furnished when ordered. Extra list for No. 2, \$3.75; No. 4, \$5.00.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.



DOUBLE-ACTING FORCE PUMP ON PLANK

DOUBLE DISCHARGE AIR CHAMBER

WITH TIGHT AND LOOSE PULLEYS

Fig. 543

Fig. 543 is the same as Fig. 542, with Pulleys and Crank-shaft in place of the Lever or handle. This Pump will be found a very useful one where power can be applied. Size of Pulleys 4x16 inches.

Brass Cylinder Pumps will be furnished with Brass Air Chamber when especially ordered, at price of the additional cost of material only.

The Metallic Valves are necessary where the Pump is used for hot water.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

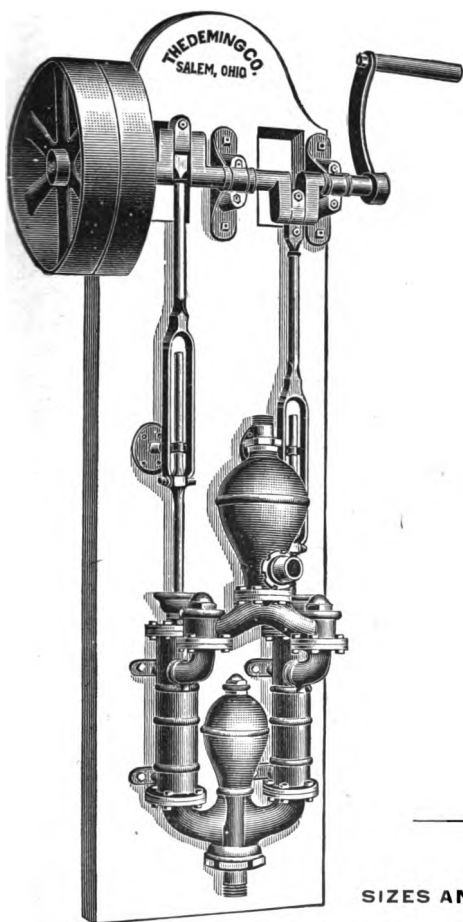
No.	Size Cyl.	† Suction and Discharge Fitted for	Stroke	IRON		BRASS CYL.		* METALLIC VALVES FOR IRON OR BRASS CYLINDERS	
				Cipher	Price	Cipher	Price	Cipher	Net extra
1	2¼ inch	1¼ in. Pipe	7 inch	Event	39 00	Evidence	58 00	Evoke	1 75
2	2½ "	1½ " "	7 "	Eventful	41 00	Evident	61 00	Evoking	2 25
3	3 "	1½ " "	7 "	Eventual	45 00	Evidently	75 00	Evolute	3 00
4	3½ "	2 " "	7 "	Everglade	51 00	Evil	94 00	Evolution	4 25
5	4 "	2 " "	7 "	Evergreen	63 00	Evilly	119 00	Evolve	6 00
6	4½ "	2½ " "	7 "	Evermore	80 00	Evitable	160 00	Evolving	8 00

† Fitted for other sizes of Suction and Discharge Pipe, but always as listed, unless otherwise ordered.

* Prices for Metallic Valves are net extra over net price of Pumps. Iron Cock with Brass Plug, \$2.50 extra list. All Brass Cock, \$5.00 extra list. With Fly-wheel and two Handles instead of Pulleys, same prices as above.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

TWO-CYLINDER FORCE PUMP ON PLANK



**WITH AIR AND VACUUM
CHAMBERS**

**WITH TIGHT AND LOOSE
PULLEYS**

Fig. 546

Fig. 546, arranged as shown for Power, is adapted for service in Factories, Shops, Creameries or any place where a light duty Power Pump is required. It should not be operated against more than 30 lbs. pressure. Size of Pulleys 4 x 16 inches.

Rules and Tables for Capacity, Required Power and Speed of Pumps, Pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Suction and Discharge Fitted for	Stroke	IRON		BRASS CYL.	
				Cipher	Price	Cipher	Price
1	2 inch	1½ inch Pipe	7 inch	Examine	55 00	Exasperate	70 00
2	2½ "	1½ " "	7 " "	Examining	60 00	Excavate	80 00
4	8 "	2 " "	7 " "	Example	75 00	Excavation	100 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

IMPROVED TWO-CYLINDER FORCE PUMP

WITH WOOD LEVERS

Fig. 615

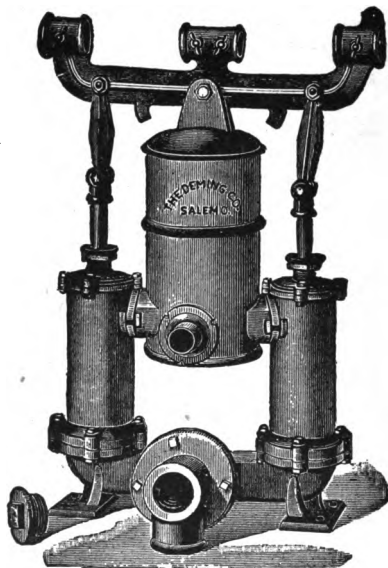


Fig. 615, Two-cylinder Force Pump, has been long and favorably known as a very efficient Fire Pump for use about Factories, Warehouses, Railroad Stations and other places where fire protection is required. This Pump is also in great favor as a Deck Pump on lake and river vessels. To prevent freezing, raise the levers alternately to their extreme height, which trips the valves and allows the water to flow back.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Suction Fitted for	Discharge Fitted for	Stroke	Capacity per Rev.	IRON		BRASS CYL.	
						Cipher	Price	Cipher	Price
1	2½ inch	2 in. Pipe	1½ inch Hose	6 inch	.25 gal.	Feasible	38 00	Federal	60 00
2	3 " "	2 " "	1½ " "	6 " "	.38 " "	Feasted	40 00	Federate	65 00
8	3½ " "	2½ " "	1½ " "	6 " "	.50 " "	Feaster	47 00	Federation	78 00
4	4 " "	2½ " "	1½ " "	6 " "	.65 " "	Feasting	55 00	Feeble	95 00
5	4½ " "	3 " "	2 " "	6 " "	.83 " "	Feather	70 00	Feeler	115 00
6	6 " "	4 " "	3 " "	8 " "	1.96 " "	Feature	110 00	Feeling	170 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED TWO-CYLINDER FORCE PUMP

WITH FOLDING BRAKES

Fig. 616

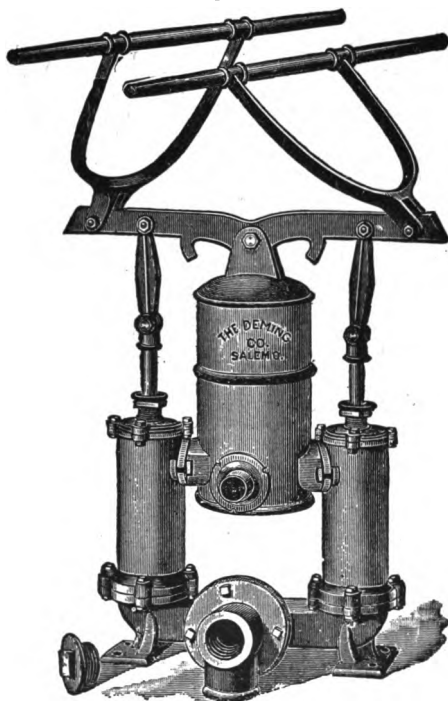


Fig. 616 is identical in construction with Fig. 615, except in the Brakes or Levers. The cuts represent accurately the construction of each of these Pumps.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Suction Fitted for	Discharge Fitted for	Stroke	Capacity per Revolution	IRON		BRASS CYL.	
						Cipher	Price	Cipher	Price
1	2½ in.	2 in. Pipe	1½ in. Hose	6 in.	.25 gal.	Feign	58 00	Fence	80 00
2	3 " "	2 " "	1½ " "	6 " "	.38 " "	Fellah	60 00	Fellow	85 00
3	3½ " "	2½ " "	1½ " "	6 " "	.50 " "	Feigned	67 00	Fencible	98 00
4	4 " "	2½ " "	1½ " "	6 " "	.65 " "	Feline	75 00	Fencing	115 00
5	4½ " "	3 " "	2 " "	6 " "	.83 " "	Felony	90 00	Fender	135 00
6	6 " "	4 " "	3 " "	8 " "	1.96 " "	Feminine	130 00	Fennel	190 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

SPECIAL DOUBLE-ACTING FORCE PUMP

ON WROUGHT IRON BARROW
WITH BRASS-LINED CYLINDER, RUBBER-BALL VALVES, AND WOOD LEVERS

Fig. 620

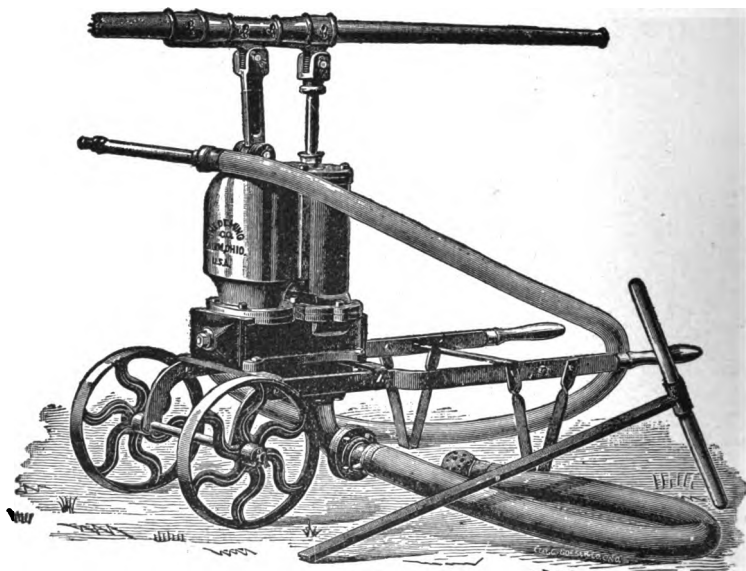


Fig. 620 represented by the cut is a Double-acting Lift and Force Pump of peculiar construction. It is mounted on a Wrought-iron Barrow, with Wood Levers. The water-ways are large and direct, which facilitates the working of the Pump. It is simple and compact. The valves may be reached by unscrewing the nut of a bolt, which holds in place a door at either end of the combined valve chamber and bed plate.

With the Wood Levers, from two to six men can operate this Pump at once. Its compactness and adaptability to a variety of purposes make it a very desirable Pump. It is excellent as a Fire Pump, as well as for irrigating purposes, where ditches and streams are available.

As listed, Fig. 620 is furnished with six feet of two-inch spiral-wire Suction Hose, twelve ft. of 1½ in. Discharge Hose, Brass Hose Nozzle and Spray, Hose Couplings, Suction Strainer, etc.

Fig. 621 is identical with 620 except that it has wrought iron brakes like the one shown on bottom of cut instead of the Wood Levers attached to the pump. This arrangement allows four to eight men to work on pump at once.

Fig. 621 is furnished with the same hose and nozzle outfits as Fig. 620, described above. Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

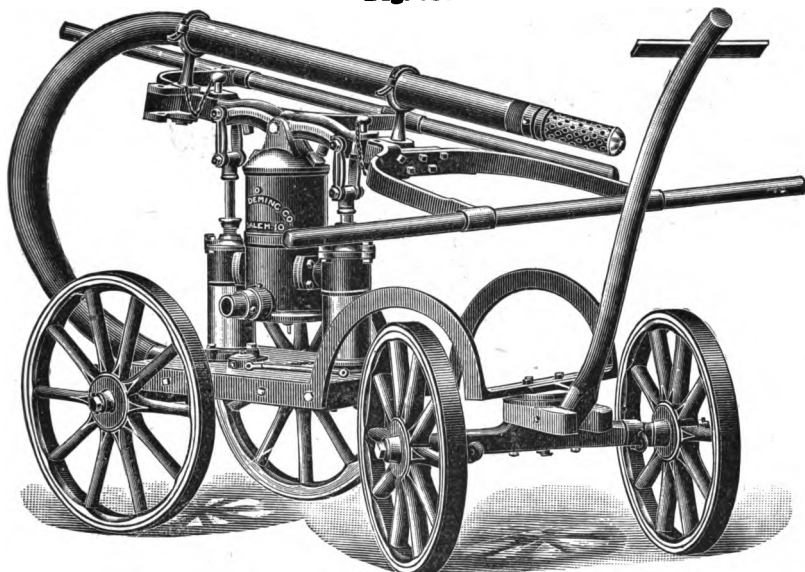
Pump Complete	Pump Cyl.	Suction Fitted for	Discharge Fitted for	Stroke	Weight	Cipher	Price
Fig. 620 as shown in cut..	5 inch	2 in. Hose	1½ in. Hose	8 inch	300 lbs.	Fickle	58 00
Fig. 621 as described.....	5 "	2 " "	1½ " "	8 "	340 "	Friction	64 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

“SWAN-NECK” VILLAGE FIRE ENGINE

WITH GUN-METAL CYLINDERS

Fig. 618



The above cut represents a “Swan-neck” style of Village Fire Engine which we are building in two sizes. These Engines are made in the most substantial manner, with reversible and Folding Brakes, arranged so that ten men can work on them at once. The Pump Cylinders are made of gun metal, with Valves of the most approved pattern, which allow a free passage of the water through them.

The fifth wheel to the truck allows of turning the shortest corners. The Pump has two Cylinders, and a large Air Chamber, giving a continuous stream of water. The prices do not include Hose, which is extra. For prices on Hose, Couplings, Nozzles, etc., see Alphabetical Index.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

Send for Book of Testimonials.

SIZES AND PRICES

No.	Size Cyl.	Suction Fitted for	Discharge Fitted for	Stroke	Capacity per Revolution	Cipher	Price
4	4½ inch	2½ in. Hose	1½ in. Hose	6 inch	.83 gal.	Festive	200 00
5	6 "	3 " "	2 " "	8 "	1.96 "	Festoon	275 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE "TORRENT" DOUBLE-ACTING FORCE PUMP

FOR FACTORY, WAREHOUSE AND RAILROAD USE

Fig. 486



The Valves of this Pump are made of Brass, and are so arranged that they can be easily taken out and replaced by simply removing the Face Plate of Valve Box. The Piston-rod is made of Bronze metal, and drip-cocks are provided to drain the Pump and prevent freezing.

This Pump is a model of convenience and mechanical workmanship, and has no superior for fire protection, and other purposes for which it is adapted.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Suction and Discharge Fitted for	Stroke	Capacity per Revolution	IRON		BRASS-LINED CYL.	
					Cipher	Price	Cipher	Price
2	2½ inch	1½ inch Pipe	8 inch	½ gallon	Entreat	45 00	Entwisted	50 00
4	3 " "	2 " "	8 " "	¾ " "	Entwine	55 00	Entwisted	61 00
6	4 " "	2½ " "	8 " "	1 " "	Entwist	65 00	Envelope	72 00

Forked Rod Coupling for Wind Mill Connection, \$2.50 extra list.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE "TORRENT" DOUBLE-ACTING FORCE PUMP

FOR FACTORY, WAREHOUSE AND RAILROAD USE

Fig. 487

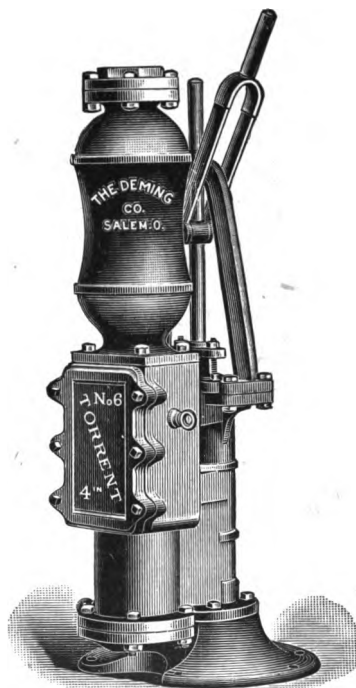


Fig. 487 is the same in construction as Fig. 486, shown on the preceding page, except that it is arranged for Power.

The Speed this Pump should run is from 20 to 40 revolutions per minute; this, of course, would vary according to the height the water is forced. This Pump is an excellent one for use at Railway Water Stations, Factories, or wherever power can be obtained.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Suction and Discharge Fitted for	Stroke	Capacity per Revolution	IRON		BRASS LINED CYL.	
					Cipher	Price	Cipher	Price
2	2½ in.	1½ in. Pipe	8 in.	½ gal.	Enviable	45 00	Envoy	50 00
4	3 " "	2 " " "	8 " "	8 " "	Envious	55 00	Eolian	61 00
6	4 " "	2½ " " "	8 " "	¾ " "	Environed	65 00	Epaulet	72 00

Forked Rod Coupling for Wind Mill Connection, \$2 50 extra list.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE "COLUMBIA" DOUBLE-ACTING FORCE PUMP

WITH WOOD LEVERS

Fig. 490

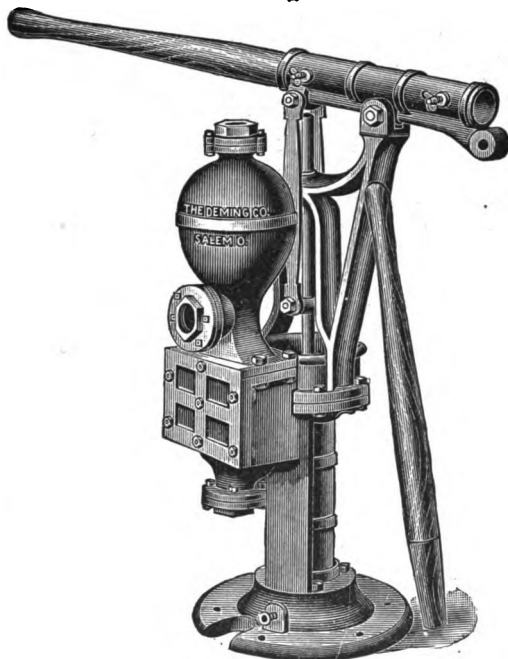


Fig. 490 is adapted for use in Factories, Mills, Distilleries, Warehouses and for Railroads to furnish water supply. They are constructed with a view to great durability, the Piston and Piston-rod, Valves and Valve Seats being made of bronze. The Valves are rubber faced.

For the heaviest work by power we would recommend **Fig. 491**, shown on next page. The Valves may be reached with ease by simply unbolting the face plate of the Valve Box.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Diam. of Cyl.	Length of Stroke	* Suction and Discharge Fitted for	Capacity per revolution	IRON		BRASS-LINED CYL.	
				Cipher	Price	Cipher	Price
3 inches	8 inches	1½ in. Pipe	.49 gallons	Fighting	65 00	Filbert	72 00
4 "	8 "	2 " "	.87 "	Figment	75 00	Filched	82 00
5 "	8 "	2½ " "	1.36 "	Figurative	90 00	Filching	97 00
6 "	8 "	3 " "	1.96 "	Filament	120 00	Filed	130 00

* Fitted for other sizes of suction and discharge Pipe, when so ordered.

Forked Rod for attaching to Wind Mill or other power, \$2.50 extra list.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE "COLUMBIA" DOUBLE-ACTING FORCE PUMP

WITH PITMAN FOR POWER

Fig. 491

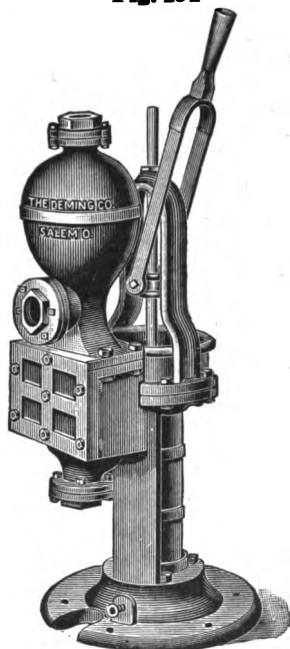


Fig. 490 on the preceding page will give an idea of the construction of Fig. 491 illustrated above. The main difference between these two Pumps is in the construction of the Rod Guide. Fig. 491 is made in larger sizes than Fig. 490 and is adapted for power only, being arranged with Pitman for operating by power of any kind. Specially adapted for Wind-Mill Railway Service.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Diam. of Cyl.	Length of Stroke	* Suction and Discharge Fitted for	Capacity per Revolution	IRON		BRASS-LINED CYL.	
				Cipher	Price	Cipher	Price
3 in.	10 in.	1½ in. Pipe	.49 gallons	Filing	65 00	Filly	72 00
4 "	10 "	2 "	.87 "	Filial	75 00	Filmy	82 00
5 "	10 "	2½ "	1.86 "	Filially	90 00	Filminess	97 00
6 "	10 "	3 "	1.96 "	Filibuster	120 00	Filthy	130 00
8 "	14 "	1½ "	.74 "	Filigree	78 00	Filtration	90 00
4 "	14 "	2 "	1.31 "	Filler	101 00	Final	115 00
5 "	14 "	2½ "	2.04 "	Filletted	120 00	Finally	135 00
6 "	14 "	3 "	2.94 "	Filletting	160 00	Finance	175 00

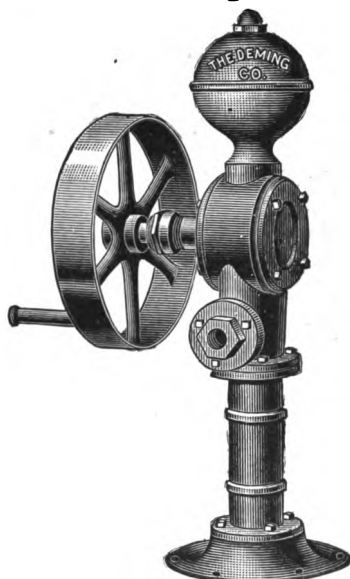
* Fitted for other sizes of suction and discharge Pipe, when so ordered.
Forked Rod for attaching to Wind Mill, \$2.50 extra list.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5,

IMPROVED HAND AND POWER PISTON PUMP

WITH CRANK SHAFT, PULLEY AND HANDLE

Fig. 585



This Pump is constructed with Cylinder in the stock, the Plunger being operated by a steel Crank Shaft and Pitman, which are inclosed below the Air Chamber. Fig. 585 is well adapted for use in Cheese Factories and Creameries; it is suitable for raising water from shallow wells, springs and cisterns, by hand or power, and will force it to any point desired; or for filling Boilers, Tanks, etc. It can be used in Deep wells by attaching independent Cylinders, and will be so fitted when ordered.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Suction Fitted for	Discharge Fitted for	Stroke	Pulleys	Cipher	Price
4	8 inch	1½ inch Pipe	1¼ inch Pipe	5 inch	15 x 4	Haddock	25 00
5	8½ "	1½ " "	1¼ " "	5 "	15 x 4	Haggard	32 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED HAND AND POWER PISTON PUMP

WITH AIR CHAMBER, CRANK SHAFT, TIGHT AND LOOSE PULLEYS

Fig. 590

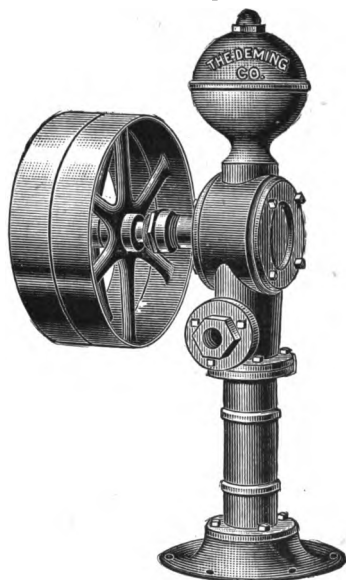


Fig. 590 is adapted for Power only. When especially ordered, we fit this Pump with an independent crank for using by hand.

It is adapted for shallow wells, or other places where the water supply is not over 25 to 28 feet below the Pump. It can be used in Deep Wells by attaching one of our independent Cylinders. **Fig. 590** will be fitted with stub rod, for Deep Wells, at same list prices when so ordered. Both **Figs. 590** and **585** are used to advantage in **Cheese Factories and Creameries.**

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	Suction Fitted for	Discharge Fitted for	Stroke	Pulleys	Cipher	Price
4	3 inch	1½ inch Pipe	1½ inch Pipe	5 inch	16 x 3	Haggish	80 00
5	8¾ "	1½ " "	1½ " "	5 "	16 x 3	Haggling	87 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5

IMPROVED POWER PISTON PUMP

WITH TIGHT AND LOOSE PULLEYS

Fig. 591

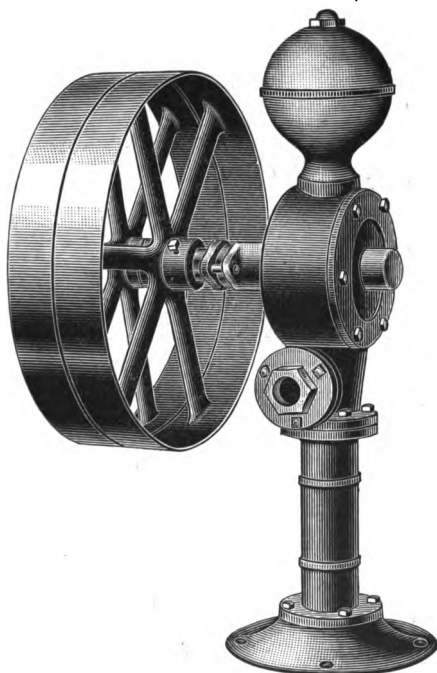


Fig. 591 is similar in design to our **Fig. 590**, but is constructed for more severe duty. The Crank-Shaft extends entirely through the body of the Pump, with bearings on both sides, adding greatly to the durability of the Pump. It is very generally used in Creameries, Cheese Factories, Cotton Gins, Shops and Factories for pumping water from wells for the boiler supply tank. For Deep Wells we supply it with an independent Cylinder of suitable size for the additional cost of the Cylinder.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages

SIZES AND PRICES

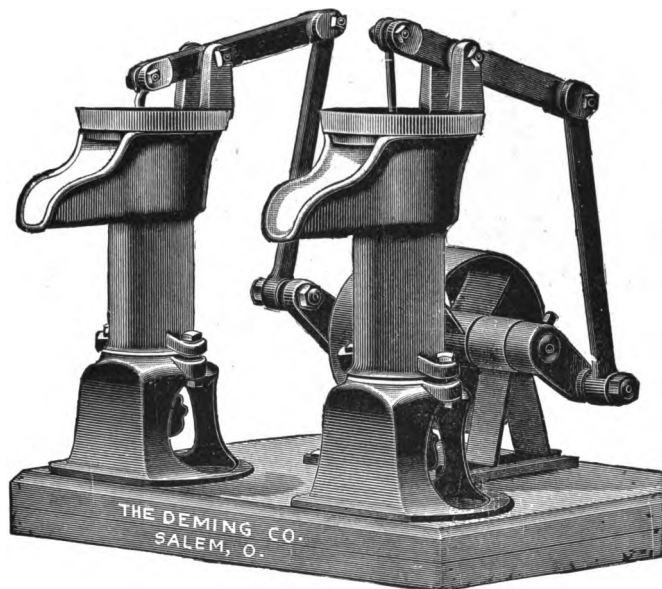
No.	Size Cylinder	Suction Fitted for	Discharge Fitted for	Stroke	Pulleys	Cipher	Price
4	3 inches	1½ in. Pipe	1¼ in. Pipe	5 inches	16x3 in.	Habendum	35 00
5	3½ "	1½ " "	1¼ " "	5 " "	16x3 " "	Habitant	42 00
4	3 " "	1½ " "	1¼ " "	5 " "	24x3 " "	Hackster	40 00
5	3½ " "	1½ " "	1¼ " "	5 " "	24x3 " "	Hairbell	47 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED TWO-CYLINDER CREAMERY PUMP

PORCELAIN-LINED WITH TIGHT AND LOOSE PULLEYS

Fig. 547



To satisfy a demand for a simple and cheap non-corrosive Pump for power, to be used in Creameries, for elevating milk from one vat to another, we have designed our two-cylinder porcelain-lined Pump, Fig. 547, which is represented by the above engraving.

It is the simplest possible form of Pump for the purpose. If it should be desired to use only one of the Pumps or Cylinders, the Pitman can be disconnected from the other. As the outfit is made of two independent Pumps or Cylinders, the suction connections and discharge spouts from each cylinder are distinct and separate. This pump can be used for many other purposes than that specified in above description.

Rules and Tables for Capacity Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

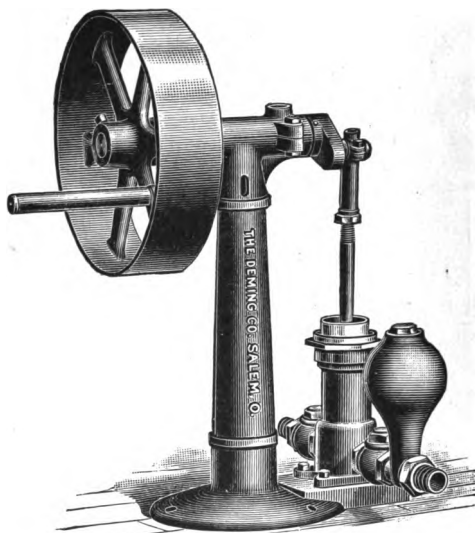
No.	Cylinder	Suction	Stroke	Pulleys	Cipher	Price
2	3 inch	1¼ inch Pipe	3 inch	7½x2½ in.	Hiccough	25 00
3	3½ "	1½ " "	3 "	7½x2½ in.	Hamite	30 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5

SPECIAL POWER PISTON PUMP

WITH ADJUSTABLE STROKE.
FOR HAND OR POWER

Fig. 552



This Pump when made with brass cylinder and air chamber is especially adapted for pumping wine and cider, oils, acids, hot liquids, etc. It is also made with iron cylinder and air chamber, for ordinary service. It may be operated by hand or power, and has adjustable crank connection for changing the length of stroke. It has brass check valves for both outlet and inlet.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig.	Size Cyl.	Stroke	*Suction and Discharge	IRON CYL. AND A. C.		BRASS CYL. AND A. C.	
				Cipher	Price	Cipher	Price
552	3 inch	2 to 6 inches	1¼ inch	Gradus	40 00	Graduated	50 00

*Fitted for Iron Pipe or Hose; but as listed this Pump with Iron Cylinder is fitted for Pipe and with Brass Cylinder has hose fittings, unless otherwise ordered.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE "GIANT" DOUBLE-ACTING POWER TANK PUMP

WITH TIGHT AND LOOSE PULLEYS

Fig. 619

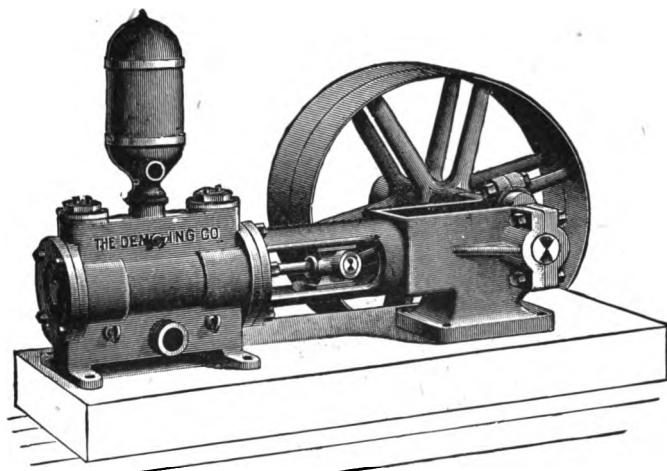


Fig. 619, represented by the annexed cut, is similar in its working parts to our Giant Thresher Tank Pump, **Fig. 554**, shown elsewhere. The frame, which embodies the Piston guides and Shaft boxes, has a solid base on outer end, the other being fastened to the Cylinder head of Pump.

It is a most compact and durable outfit, and, as the pulleys are large, gearing is dispensed with. For ordinary water supply service in factories, and for filling Power House tanks, where the capacity is sufficient, the Giant Power Tank Pump is a most useful machine. The Valves can readily be taken out for repairs when necessary.

As listed below, this Pump is furnished with two sizes of pulleys. For 25-foot head, or under, the 24-inch pulleys can be used, but for 25 to 50-foot head we would recommend the 36-inch pulleys. This Pump may be run at 30 to 50 revolutions per minute.

Rules and Tables for Capacity, required Power and Speed of Pumps, pages 11 to 16.

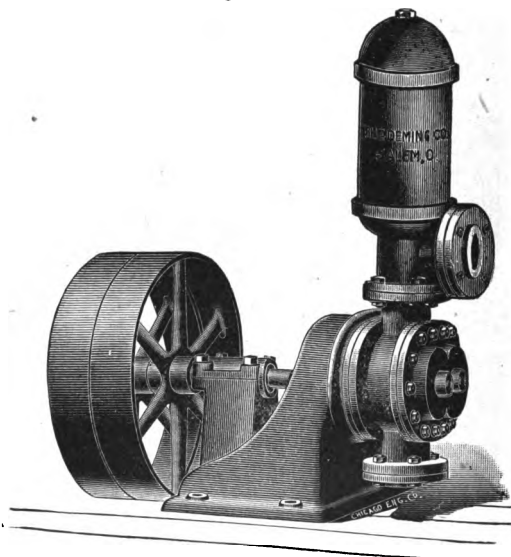
SIZES AND PRICES

Size Cyl.	Stroke	Suction fitted for Pipe	Discharge fitted for Pipe	Pulleys	Gals. per Rev.	IRON		BRASS LINED CYL.	
						Cipher	Price	Cipher	Price
5-in.	5-in.	2½ in.	2 in.	24 x 3	.85	Fakir	60 00	Fake	65 00
5-in.	5-in.	2½ in.	2 in.	36 x 3	.85	Fame	70 00	Fault	75 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

POWER ROTARY OIL PUMPS

Fig. 677 and 678



(Cut represents Fig. 678.)

The Power Rotary Pump represented by the cut is designated as **Fig. 678**. The difference between Fig. 677 and Fig. 678 is that **Fig. 677** has in place of air chamber and side discharge simply a flange and upward discharge.

These pumps are designed for moving large quantities of oil against a maximum pressure of about 25 lbs. The Pump has a **Patented Compensating Gear Drive** for the cams. This feature permits foreign substances, such as small pieces of wood, scraps of leather, etc., to pass through without injury to the pump, a feature not possessed by any other Rotary Pump with gear driven cams. The capacity is one gallon per revolution.

These pumps are largely used by oil refiners and pipe mills, and can be operated by gasoline engine or other power. They are made especially for handling oil, but can be used for pumping water when same is clear and free from grit. *The prices are for Iron Pumps.*

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig.	Suction Inches	Discharge Inches	Pulleys Inches	Rev. per Minute	Capacity Gallons	Cipher	Price
677	4	3	24 x 4	100 to 150	100 to 150	Hurler	200 00
678	4	3	24 x 4	100 to 150	100 to 150	Hurdle	215 00

Prices of Bronze Pumps on application.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED POWER ROTARY FORCE PUMP ON FRAME

WITH TIGHT AND LOOSE PULLEYS

Fig. 577

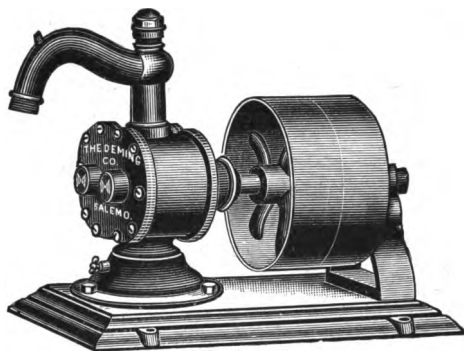


Fig. 577, a Power Rotary Force Pump, on Iron Frame, is designed for the use of Oil Refiners, Distillers, Creameries, Brewers, Wine Producers, Varnish Makers, Meat Packers, etc., in fact wherever water or other liquid must be rapidly elevated by power. This Pump can be used against a pressure of 40 pounds to the square inch, which renders it particularly useful for discharging into an elevated Tank, also as a Fire Pump for use about Factories, Warehouses, etc., where power is obtainable. It will throw water from 100 to 150 feet horizontally. In discharging to a Tank, the cap, as shown in cut on upward discharge, should be placed on the spout. For pumping acids, the Bronze Pumps should be used, and when intended for hot liquids, they should have Metallic Check Valve. Drip-cocks are provided to prevent freezing.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Suction Fitted for Pipe	Discharge Fitted for Pipe	Size Pulleys	Discharges at 100 Rev. per Minute	IRON		BRONZE CASE AND CAMS		*BRONZE	
					Cipher	Price	Cipher	Price	Cipher	Price
1	1¼ inch	1 inch	7 x 2½	11 gal.	Gazetteer	27 00	Genial	49 00	Groper	60 00
2	1½ "	1 "	7 x 2½	15 "	Gelatine	32 00	Genitive	56 00	Grotto	65 00
3	1½ "	1¼ "	7 x 2½	20 "	Gender	38 00	Genius	63 00	Grovel	75 00
4	2 "	1½ "	11 x 3	25 "	Generate	48 00	Gentleel	78 00	Growler	100 00
5	2 "	2 "	11 x 3	36 "	Generous	54 00	Gentility	90 00	Grozzor	120 00
6	3 "	2½ "	14 x 4	48 "	Genesis	80 00	Gentleman	135 00	Gruffly	175 00

These Pumps are fitted for Iron Pipe, but will be fitted for Lead Pipe or Hose when so ordered.
*All Bronze except Base, Platform, Pulleys and Bearings.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.



ROTARY FORCE PUMP

WITH LIGHT FLY-WHEEL

Fig. 574

This cut represents **Fig. 574**, a Rotary Force Pump, in all respects similar to **Fig. 575**, except that the Fly-wheel is lighter and the base is shorter than in **Fig. 575**.

SIZES AND PRICES

No.	Suction Fitted for Pipe	Discharge Fitted for Pipe	Discharges at 50 Rev. per Minute	IRON		BRONZE CASE AND CAMS		*BRONZE	
				Cipher	Price	Cipher	Price	Cipher	Price
1	1 1/4 inch	1 inch	5 1/2 gal.	Garnishee	19 00	Garretting	41 00	Gadwall	51 00
2	1 1/4 "	1 "	7 1/2 "	Garniture	22 00	Gashed	46 00	Gaffer	56 00
3	1 1/2 "	1 1/4 "	10 "	Garretted	26 00	Gashing	51 00	Gairish	63 00



ROTARY FORCE PUMP

ON FLAT BASE

Fig. 578

The Base of this Pump is flat and square, with a cast hub projecting below. In its working parts, **Fig. 578** is the same as **Figs. 574** and **575**.

Both the Suction and Discharge are fitted for Hose Couplings, but will be fitted for Iron or Lead Pipe, if so ordered.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Suction Fitted for Hose	Discharge Fitted for Hose	Discharges at 50 Rev. per Minute	IRON		BRONZE CASE AND CAMS		*BRONZE	
				Cipher	Price	Cipher	Price	Cipher	Price
1	1 1/4 inch	1 inch	5 1/2 gal.	Garland	19 50	Gaulish	41 50	Galban	51 00
2	1 1/4 "	1 "	7 1/2 "	Garlic	22 50	Garrison	46 50	Galenic	56 00
3	1 1/2 "	1 1/4 "	10 "	Garment	26 75	Garrulity	51 75	Galipot	64 00
4	1 1/2 "	1 1/2 "	12 1/2 "	Garnet	36 50	Garrulous	67 00	Galerite	89 00
5	2 "	2 "	18 "	Garnish	42 00	Garter	77 50	Galvanic	107 00

* The Bronze Pumps are all Bronze Metal, except Base and Fly-wheel.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

ROTARY HOUSE FORCE PUMPS

WITH WALL BRACKET

Fig. 579—With Crank



This cut represents **Fig. 579** Rotary Force Pump, which in its working parts is identical with **Figs. 574** and **578**, but it has a crank instead of fly-wheel, and is fitted with brackets for attaching to post or wall.

Fig. 581—With Fly-wheel



Fig. 581, shown by the annexed cut, is exactly like **Fig. 579**, except that it has a fly-wheel with handle instead of a crank.

The suction connection of **Figs. 579** and **581** is regularly fitted for iron pipe, but will be fitted for lead pipe or hose at a slight additional cost, when so ordered.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Fitted for Pipe		Capacity at 50 rev. per min.	Fig. 579				Fig 581			
	Suct'n.	Disch'g.		IRON		BRONZE CASE AND CAMS		IRON		BRONZE CASE AND CAMS	
				Cipher	Price	Cipher	Price	Cipher	Price	Cipher	Price
1	1 in.	1 in.	5½ gals.	Grilly	17 00	Grievous	39 00	Grimace	19 00	Grinner	41 00
2	1 "	1 "	7½ "	Grieving	20 00	Griffon	44 00	Grimly	22 00	Griper	46 00
3	1¼ "	1¼ "	10 "	Griever	24 00	Grillade	49 00	Grimsir	26 00	Gripple	51 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

IMPROVED HAND ROTARY FORCE PUMP

WITH FLY-WHEEL AND CRANK

Fig. 575

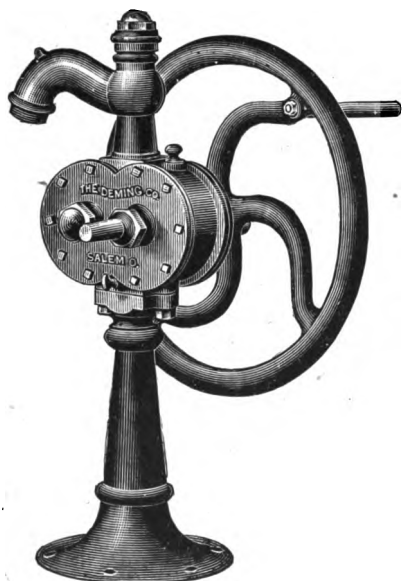


Fig. 575 is a positive Suction and Force Pump, metallic fitted, especially adapting it for the requirements of Brewers, Wine Producers, Distillers, Gas Companies, etc.

Our Rotary Pumps are constructed with the greatest care, the Cases and Cams of each size being made to exact gauges and templets. The peculiar construction of the Rotary Pump requires the utmost accuracy in fitting every part.

For pumping oil, fermented and acetous liquids, the Pump is very efficient; and for pumping hot or cold water it can be used in place of the ordinary Piston Pumps. When used for pumping acids, the working parts should be made of Bronze Metal. For pumping hot liquids we arrange it with a Metallic Check Valve, without extra charge.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	†Suction Fitted for Pipe	†Discharge Fitted for Pipe	Discharges at 50 Revolutions per Minute	IRON		BRONZE CASE AND CAMS		*BRONZE	
				Cipher	Price	Cipher	Price	Cipher	Price
1	1 1/4 inch	1 inch	5 1/2 gal.	Gallantry	20 00	Gammon	42 00	Gauzy	52 00
2	1 1/2 "	1 "	7 1/2 "	Gallery	23 00	Gander	47 00	Gavel	57 00
3	1 3/4 "	1 1/4 "	10 "	Gallop	27 00	Gangrene	52 00	Gawky	64 00
4	1 1/2 "	1 1/2 "	12 1/2 "	Gallows	35 00	Gangway	65 00	Gayety	87 00
5	2 "	2 "	18 "	Gambol	40 00	Gargle	75 00	Gecko	105 00
6	3 "	2 1/2 "	24 "	Gamester	50 00	Gargoyle	100 00	Geminy	140 00

Nos. 4, 5 and 6 furnished with 36 inch Fly-wheel if desired at \$4.50 each extra.

†These Pumps are fitted for Iron Pipe, but will be fitted for Lead Pipe or Hose, when so ordered.

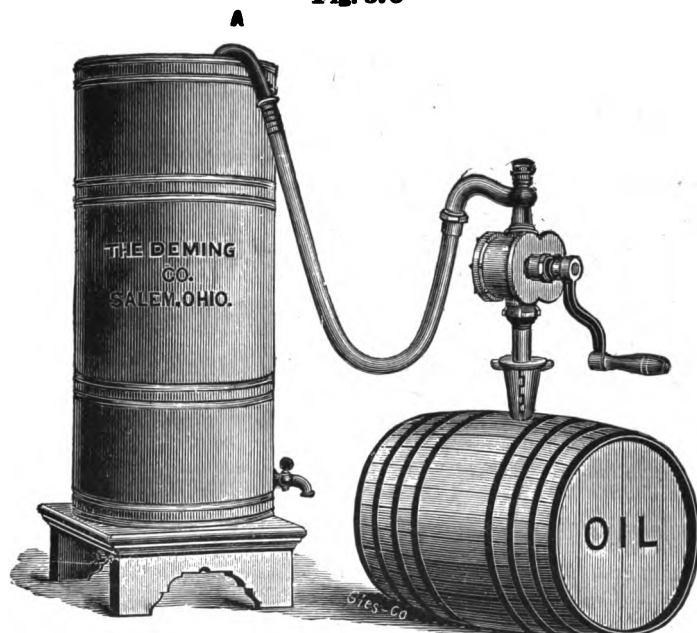
*The Bronze Pumps are all Bronze Metal, except Base and Fly-wheel.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED HAND ROTARY FORCE PUMP

WITH BARREL ATTACHMENT

Fig. 576



To dealers in Oils and Liquors, this Pump is of great utility. With it the liquid can be transferred from the cellar to any part of the building. It is a positive Suction and Force Pump; is simple in construction and is easily operated. With each Pump is furnished a Goose-neck Spout attachment, Barrel attachment, with Suction Pipe 3 feet long and Hook. Hose is not furnished with Pump as listed, but we can furnish it in any lengths. When ordered, we furnish Brass or Copper Suction Pipe.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Suction Fitted for Pipe	Discharge Fitted for Hose.	Discharges at 50 Rev. per Minute	IRON		BRONZE CASE AND CAMS.		*BRONZE	
				Cipher	Price	Cipher	Price	Cipher	Price
1	1 inch	1 inch	5½ gal.	Gaseous	17 00	Gastric	39 00	Genevan	49 00
2	1 " "	1 " "	7½ "	Gasometer	20 00	Gather	44 00	Gentian	54 00
3	1¼ " "	1¼ " "	10 "	Gasped	24 00	Gathered	49 00	Gentile	61 00

* The parts of the Pump coming in contact with the liquid are made of Bronze.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

IMPROVED POWER AIR COMPRESSOR

OR VACUUM PUMP

WITH WATER JACKET AND BELT FLY-WHEEL

Fig. 680



Fig. 680, Air Compressor, for forcing air into receivers, has a wide range of usefulness. It is particularly valuable as a means of starting Gas and Gasoline Engines. Within its range of capacity, it may be used in connection with dry pipe sprinkler systems. Bicycle shops, chemical works, etc., find them useful. They are also used by artists, dentists, physicians, and in hospitals.

This Pump is made in the very best manner, and from the best materials. It has cast steel crank shaft, large genuine babbitt bearings, heavy belt fly-wheel, malleable connecting rod, double packed piston, water jacketed cylinder, steel valves and brass valve seats. It has practically no clearance, allowing a pressure of 150 pounds and a speed of 125 revolutions per minute. A handle is provided for use when operated by hand. **Fig. 680** can also be used as a Vacuum Pump.

Rules and Tables for Capacity, Required Power, and Speed of Pumps, pages 11 to 16.

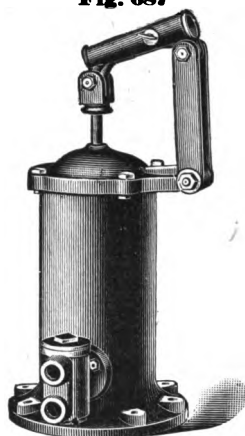
PRICE LIST

Diam.	Stroke	Displacement Free Air per Revolution	Revolutions per Minute	Maximum Pressure	Suction Pipe	Discharge Pipe	Water Jacket Inlet and Outlet	Belt Fly-Wheel	Cipher	Price
2½	4	23¾	125	150	½ in.	½ in.	½ in.	18x3	Hunger	60 00
3½	5	48	125	150	1 " "	¾ " "	¾ " "	24x4	Huntsman	90 00
4	6	75¾	125	150	1½ " "	1 " "	¾ " "	30x4	Hurden	125 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED RAILWAY GATE PUMP

Fig. 687



The Railway Gate Pump shown above is of a late design for operating Pneumatic Gates and has been thoroughly tested and approved in service. It may be used either for Vacuum or Pressure as desired, with equal ease and efficiency. The Pump Barrel is of close grained, gray iron, carefully finished throughout. The Piston is furnished with a cup leather ring, and is so designed that there is very little clearance or dead space. The Pump Cylinder is 8 inches in diameter and has a stroke of 12 inches. The Cap bearing the Lever Yoke and links is so fitted as to swivel in any direction simply by loosening four nuts. This arrangement allows the Pump to be adapted to cramped situations where necessary. The Valves are of the wing type, Leather Faced and are both contained in the Valve Chamber, which is flanged to the body of the Pump, as shown in the cut. The Valves are easily accessible by removing the cap above them. The Pump is so fitted that no pipe joints need be broken to get at the valves or to make any necessary repairs. The Valve Chamber is entirely clear of the floor, so that no special blocking need be arranged for in setting the Pump. The Brake Lever is 48 inches long. This Pump is adapted for any pressure to be used on gate service and especially designed for ease of working and maintenance.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

CYLINDER		PIPING		Cipher	Price
Diameter	Stroke	Inlet	Discharge		
5 inch	10 inch	$\frac{3}{4}$ inch	$\frac{3}{4}$ inch	Hakot	35 00
8 "	12 "	1 "	1 "	Hakim	50 00

NOTE.—Pump is furnished with Brake Lever not shown in cut.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

COMPRESSION AND VACUUM PUMPS

FOR COMPRESSING OR EXHAUSTING AIR

Fig. 657 With Brake for Hand

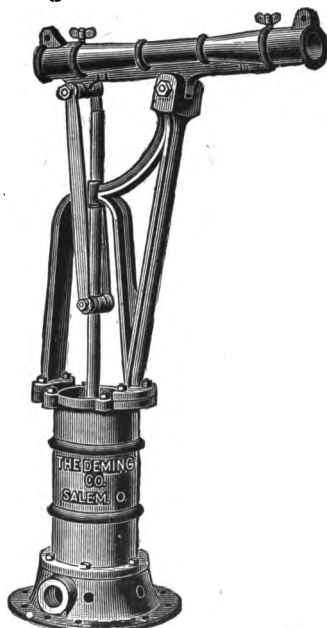


Fig. 658 With Pitman for Power



These Pumps are constructed with Brass-lined Cylinders, solid Brass Plungers and Brass Valves. On the up stroke of the Plunger the air is taken in the cylinder at the Inlet Valve, and on the down stroke it is forced out at the Outlet Valve. These Pumps will discharge air against a pressure of 50 pounds to the square inch. When used as a Vacuum Pump, the vessel to be exhausted of air is connected with the Inlet Valve, and, as an Air Compressing Pump, the vessel is attached to the Outlet Valve.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Size Cyl.	Inlet Valve Opening	Outlet Valve Opening	Stroke	Fig. 657		Fig. 658	
				Cipher	Price	Cipher	Price
6 inch	1½ inch	1¼ inch	12 inch	Hackneyed	50 00	Hustling	45 00

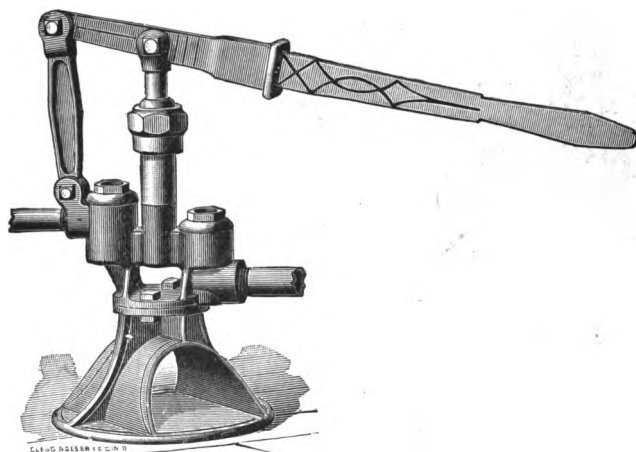
N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

“LITTLE GIANT”

HYDRAULIC PRESSURE TEST PUMP

FOR TESTING BOILERS, CYLINDERS, PIPES, ETC.

Fig. 566



The above cut represents our new Hydraulic Pressure Test Pump for determining the pressure strength of Boilers, Pipes, Pump Cylinders, etc. With this Pump and a suitable Gauge, the pressure strength of Boilers, etc., can be tested up to 800 lbs. to the square inch. The working parts of the “Little Giant” Test Pumps are made entirely of bronze.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Size of Piston	Length of Stroke	Length of Lever	Suction Pipe	Discharge Pipe	WITHOUT GAUGE		WITH GAUGE	
					Cipher	Price	Cipher	Price
$\frac{7}{8}$ inch	3 inch	24 inch	$\frac{3}{4}$ inch	$\frac{1}{2}$ inch	Horseman	25 00	Hulling	50 00

N. B.—Every part of this Pump is constructed in the most substantial manner, so that greater pressure can be obtained by using a longer Lever, which can be easily made of Bar Iron or Steel, the Lever Socket being adapted for the change.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

IMPROVED BRASS AIR PRESSURE PUMP

WITH DISCHARGE FOR RUBBER TUBING

Fig. 565

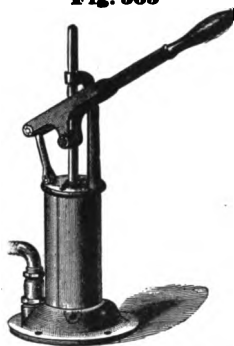


Fig. 565 is a very compact and useful Air Pump. The principal working parts (Cylinder and valves) are made of Brass; the Piston-rod of polished Steel.

It can be used for compressing air in a Tank or Barrel to force any liquid through Pipes, or to force out obstructions from waste Water Pipes. It will occupy about 6 inches square on the counter or shelf where it may be located. The height is only about 12 inches.

SIZE AND PRICE

Fig.	Size Cyl.	Stroke	Height	Cipher	Price
565	3 inch	3½ inch	12 inches	Humble	10 00

Fig. 562



AIR PRESSURE PUMP

WITH IRON FOOT REST

Our Pneumatic Pump, **Fig. 562**. Is used for compressing air, in raising liquids, such as Illuminating Oils, Beer, Ale, etc. The Cylinder is made of Brass Tubing. The Valves are ground in, so they are perfectly air-tight. We furnish Pumps with or without Stop-Cock, as listed below.

All parts are made of brass except the Frame, Foot-rest and Piston-rod.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

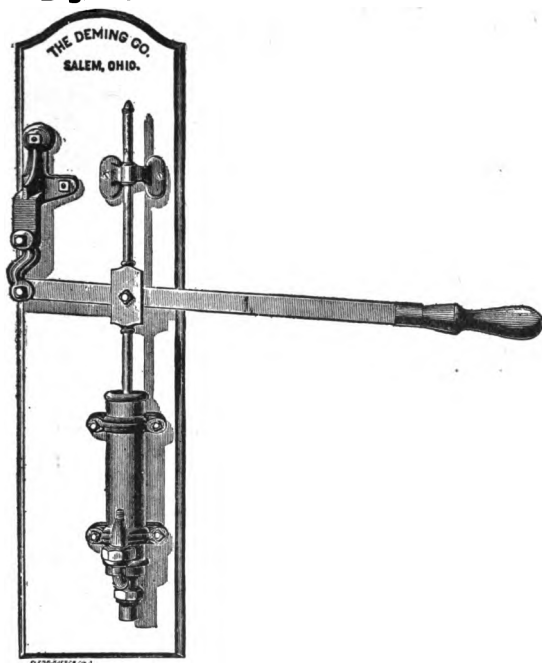
Fig. 562	Diameter of Cyl.	Length of Stroke	PRICE WITHOUT STOP-COCK		PRICE WITH STOP-COCK	
			Cipher	Price	Cipher	Price
Air-Pump	2 inches	18 inches	Human	10 00	Humanely	12 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

AIR PRESSURE PUMPS

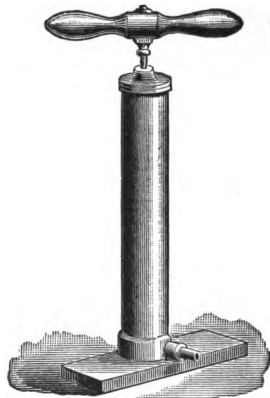
ALL BRASS

Fig. 563



Brass Air Pressure Pump

Fig. 564



Gas Fitters' Proving Pump

The above cuts represent, **Fig. 563**, our Brass Air Pressure or Vacuum Pump; and **Fig. 564**, Gas Fitters' Proving Pump. They are made of Brass, with Metallic Valves, and are constructed in the best possible manner.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Fig. 563, Brass Air Pump				* Fig. 564, Gas Fitters' Proving Pump			
Size Cyl.	Stroke	Cipher	Price	Size Cyl.	Stroke	Cipher	Price
2 inch	6 inch	Humanize	15 00	2 inch	10 inch	Humility	10 00

* **Fig. 564** furnished with Mercury Gauge and 3 feet Rubber Tubing, complete, \$10.00 extra list. Spring Gauge, complete, with 3 feet Rubber Tubing, \$10.00.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

STANDARD PLUMBERS' FORCE PUMP



FOR FORCING OUT WASTE PIPES

Fig. 560

Hose is attached to the discharge and is connected to the Pipe to be operated upon; the Pump being placed in a Bucket or other vessel containing water.

SIZE AND PRICE

Fig.	Discharge Fitted for	Cipher	Price
560	$\frac{3}{4}$ inch Hose	Hatter	10 00

STANDARD GAS FITTERS' DRIP PUMP



FOR EXTRACTING WATER FROM GAS DRIPS

Fig. 561

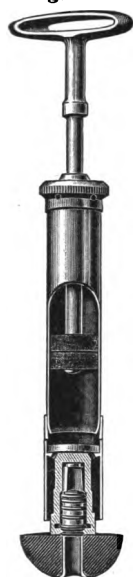
SIZE AND PRICE

Fig.	* Suction Fitted for	Cipher	Price
561	$\frac{3}{4}$ inch Pipe	Haughty	12 00

* Fitted for 1 inch Pipe ; but always for $\frac{3}{4}$ inch, as listed, unless otherwise ordered.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

Fig. 639



THE "P. & H." SANITARY FORCE PUMP

Fig. 639, "P. & H." (Plumber and Helper) Force Pump, is a boon to the householder, as it saves him the time and annoyance of sending for a plumber every time the sewer trap in wash basin, bath tub, etc., gets stopped up.

To operate, the basin is filled with water, and the rubber half ball, which fits in the waste opening, and has discharge through it, is held firmly in place while plunger is operated. The suction being above the rubber, allows water to be used from the basin, and in nine cases out of ten the complete cleaning of pipes is effected.

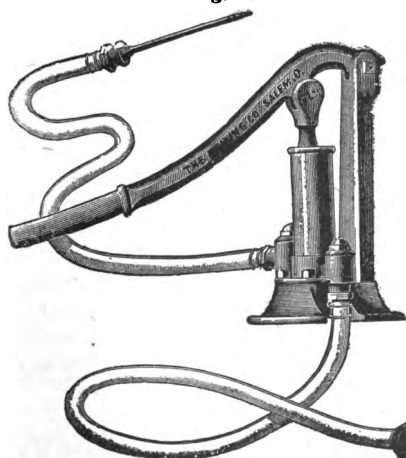
Every plumber and dealer should carry these Pumps in stock.

PRICE LIST

Fig. 639, "P. & H." Brass Sanitary Force Pump, with spherical rubber discharge plug.....(Cipher, *Hatting*) 5 00

IMPROVED HAM PRESERVING PUMP

Fig. 694



The Pump represented by the annexed cut is adapted for curing hams by means of forcing a pickle or liquid preparation into them. This pickle permeates every part of the ham, and will cure it in a very short time, in any season of the year. This Pump is compact and powerful in its operation. The working parts are made of Brass, and the Injecting Needle Point is nickel-plated.

SIZE AND PRICE

Fig.	Suction Hose	Discharge Hose	Wgt.	Cipher	Price
694	3ft. of $\frac{1}{2}$ in.	3ft. of $\frac{1}{2}$ in.	34lbs.	Huller	15 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE "SUCCESS" FIRE PROTECTOR

MALLEABLE HANDLE. REMOVABLE PUMP

Fig. 668



While this outfit has been designed essentially as a fire protector, it may also be used in spraying, washing windows and buggies, the application of white-wash to buildings, etc. It consists of our **Success** Brass Pump placed in a galvanized iron tank holding five gallons. The tank has a **valve** at the bottom which enables the operator to fill it *from a barrel* easily and quickly. The pump is provided with a special fire nozzle and will throw a *solid stream of water fifty feet*. It is thus a handy fire engine always at hand.

After a trial of many fire extinguishers which are on the market, in our own factory, we have discarded them all for the apparatus here shown. Many other factories have done the same, and have purchased this outfit as being the most satisfactory fire protector on the market.

This apparatus is used to the best advantage by placing on or beside a barrel filled with water (any druggist can give recipe for a brine solution that will not freeze), and if barrels for this purpose, each with a Success Fire Protector, are placed in convenient locations about a mill, mine, warehouse or factory a most efficient and economical means of fire protection is secured.

PRICE LIST

Fig. 668, complete, as shown in cut, (Cipher, *Kernel*) 9 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

SPECIAL POWER ROTARY OIL PUMP

WITH EXTENDED SHAFT
FOR LUBRICATING MACHINE TOOLS

Fig. 580

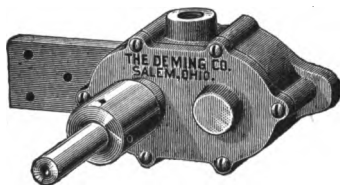


Fig. 580 represented by the annexed cut is a Rotary Force Pump which has been designed to meet the requirements of machine tool manufacturers, for lubricating special screw threading and tapping tools. A bracket is attached to the pump, by means of which it may be bolted to the machine.

This Pump may also be used for pumping small quantities of water for house supply where it can be operated by electric motor or other power, such as small gas engine. It is compact and takes up but little space. The pump should not be set more than 10 to 15 feet above the liquid, preferably as near to it as possible. It will force water or oil to a height of 75 to 100 feet above the supply.

This little pump can be run with safety as high as 150 revolutions per minute, but 100 is about the proper speed. It is made in bronze only on special order. The diameter of shaft is $\frac{3}{4}$ inches, and the length $2\frac{3}{4}$ inches from stuffing-box to outer end.

A pulley of proper size should be attached to the shaft and the Pump Bracket fastened rigidly to the machine tool if thus used, or to a wall or upright timber if used for water supply as suggested above.

PRICE LIST

Section Fitted for	Discharge Fitted for	Capacity per Min. at 100 Rev.	IRON		BRONZE	
			Cipher	Price	Cipher	Price
$\frac{1}{2}$ inch Pipe	$\frac{1}{2}$ inch Pipe	1 gallon	Garrot	15 00	Garroter	25 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

HAND BOILER FEED PUMPS

RIGHT OR LEFT HANDED

Fig. 567

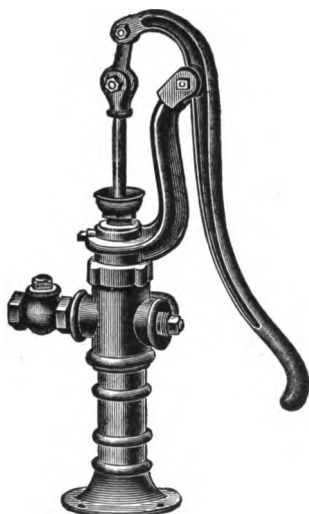
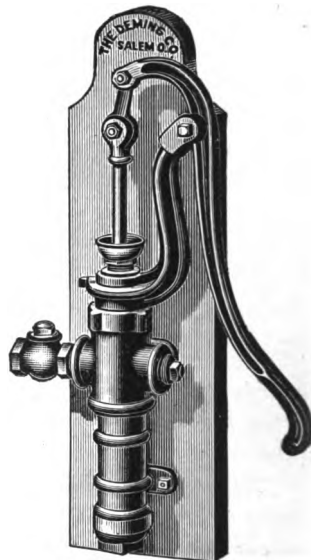


Fig. 587



These Pumps are especially made for supplying water to boilers in Steam Heating Work, and wherever a Hand Pump can be utilized for a low pressure steam boiler.

When required for pumping hot water we make these Pumps with Metallic fittings, as per list below. When used for hot water the Pump should be located as near the water as possible.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Description	Size Cyl.	Suction and Discharge Fitted for Pipe	Fig. 567				Fig. 587			
			Plain Valves		Metallic Valves		Plain Valves		Metallic Valves	
			Cipher	Price	Cipher	Price	Cipher	Price	Cipher	Price
With Check Valve	2 in.	1 in.	Habiliment	10 00	Hackneying	12 00	Habitual	10 00	Hackney	12 00
Without " "	2 " "	1 " "	Haberdasher	8 00	Hacked	10 00	Habit	8 00	Hackle	10 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

STEAM BOILER FEED PUMP

WITH STUB END FOR POWER

Fig. 588

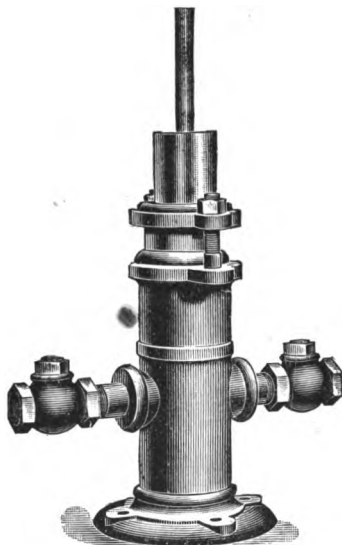


Fig. 588 is the Standard Plunger pattern Boiler Feed Pump. It is Metallic Fitted, suitable for pumping **Hot or Cold Water**. It is simple, durable and efficient and is commonly attached to Power by extending Piston-rod to Counter Crank Shaft, or a face plate on the end of Main Shafting.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Piston	Suction Fitted for	Discharge Fitted for	Stroke	WITH BRASS CHECK VALVES	
					Cipher	Price
2	1¼ inch	¾ inch Pipe	¾ inch Pipe	6 inch	Hamper	11 00
3	1½ "	1 " "	1 " "	6 "	Handful	18 00
4	1½ "	¾ " "	¾ " "	3 "	Handicap	16 00
5	2 "	1 " "	1 " "	3 "	Handily	20 00
6	2½ "	1 " "	1 " "	3 "	Haudsome	24 00
7	3 "	1½ " "	1½ " "	3 "	Handy	30 00
8	2 "	1½ " "	1½ " "	6 "	Hanged	25 00
9	2½ "	1½ " "	1½ " "	6 "	Hanker	33 00
10	3 "	1½ " "	1½ " "	6 "	Happen	45 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

IMPROVED BELTED BOILER FEED PUMP

WITH ADJUSTABLE STROKE, TIGHT AND LOOSE PULLEYS

Fig. 589

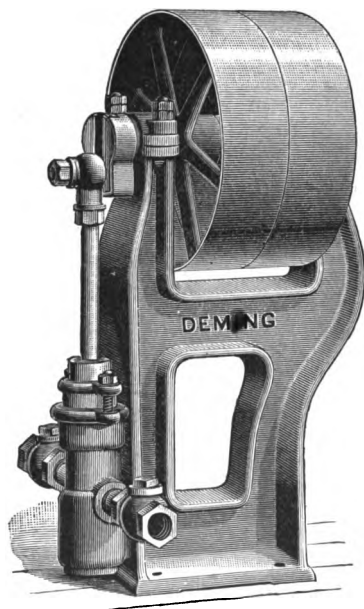


Fig. 589 is our new boiler Feed Pump for small powers. It is very compact and rigid, as may be seen by examination of the cut. This pump is built in three sizes as listed. It is furnished with fast and loose pulleys, and will pump against a pressure of 70 pounds to the square inch or less. The stroke is adjustable, the lists showing maximum. It is furnished complete with Brass Check Valves.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Diameter Cylinder	Longest Stroke	Suction	Discharge	Pulleys	Cipher	Price
2 inch	2½ inch	1 inch	1 inch	14 x 3	Hamster	30 00
2½ "	3 "	1¼ "	1¼ "	16 x 4	Hansel	40 00
3 "	3 "	1½ "	1½ "	18 x 4	Hansom	50 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

STEAM-BOILER FEED PUMP

WITH PULLEYS. FOR HAND OR POWER

Fig. 592

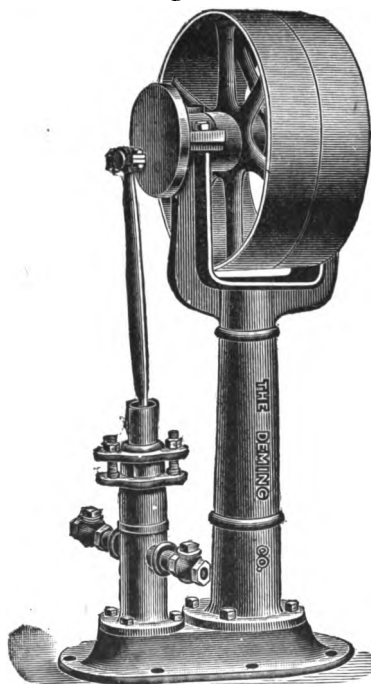


Fig. 592 is made with a substantial wrought-iron Handle on the end of Crank-shaft, opposite the Face-plate, so that the boiler can be filled by hand when necessary. The Crank-shaft has a bearing on each side of the Pulleys. The Plunger, Piston and Valves are Brass.

Common practice requires 8 Gallons of Water per Horse-power per hour for Boiler Feeding.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Piston	Suction Fitted for	Discharge Fitted for	Stroke	Size Pulleys inches	Cipher	Price
1	2 inch	1 inch Pipe	1 inch Pipe	3 inch	16 x 4	Hardly	84 00
2	2½ "	1 " "	1 " "	3 "	16 x 4	Harem	40 00
3	3 "	1½ " "	1½ " "	3 "	16 x 4	Harmless	50 00
4	2 " "	1½ " "	1½ " "	6 "	18 x 4	Harmonics	65 00
5	2½ " "	1½ " "	1½ " "	6 "	18 x 4	Harmony	75 00
6	3 " "	1½ " "	1½ " "	6 "	18 x 4	Harpist	85 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE "TRIUMPH" DOUBLE-ACTING FORCE PUMP

WITH CUT GEARING

Fig. 609

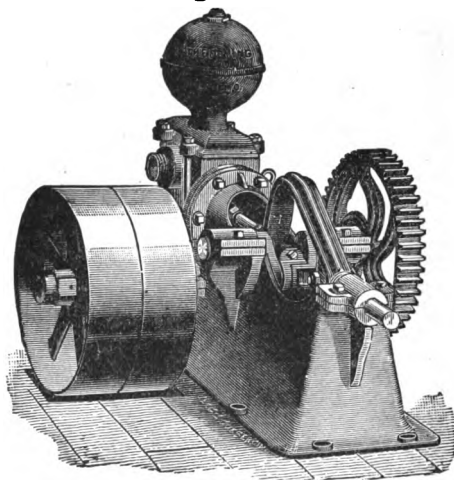


Fig. 609 shows our Geared "Triumph" Pump, with Tight and Loose Pulleys, for heavy pressure. The Pump is bolted to a heavy frame, the Crank Shaft, Rod Guide, Yoke and Pitman are so arranged as to keep the Piston always in line with the Cylinder.

In pumping against a pressure up to 100 pounds to the square inch this Pump should be run at the rate of 30 to 50 revolutions per minute. The Pump is **geared to increase power three to one.**

When used for feeding Steam Boilers it should be so specified in the order, since for this purpose the Piston should be made of hard brass or bronze. The Piston-rod, the Valves and Valve Seats are always made of bronze, and the Cylinders are Brass-Lined, except in the "Brass Cyl." Pumps, which have all-brass Cylinder.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	* Suction Pipe Fitted for	* Discharge Pipe Fitted for	Stroke	Size of Pulleys	Capacity per Stroke	BRASS LINED		BRASS CYL.	
							Cipher	Price	Cipher	Price
1	2½ in.	1½ in.	1½ in.	4½ in.	16x4 in.	.19 gal.	Fate	75 00	Fatherly	125 00
2	3 " "	1½ " "	1½ " "	4½ " "	16x4 " "	.27 " "	Fatal	80 00	Fathom	130 00
3	4 " "	2 " "	1½ " "	4½ " "	16x4 " "	.48 " "	Fatality	85 00	Fatigue	145 00
4	5 " "	2½ " "	2 " "	4½ " "	16x4 " "	.76 " "	Fateful	115 00	Fatty	185 00

* Fitted for Iron Pipe as listed, but when so ordered will be fitted for Hose.

With Brass Spring Piston Nos. 1 and 2, \$3.00; No. 3, \$4.00, and No. 4, \$6.00 extra list. In telegraphic orders add the word "Spring" to the cipher word when Brass Spring Piston is wanted.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE "TRIUMPH" DOUBLE-ACTING FORCE PUMP

FOR POWER

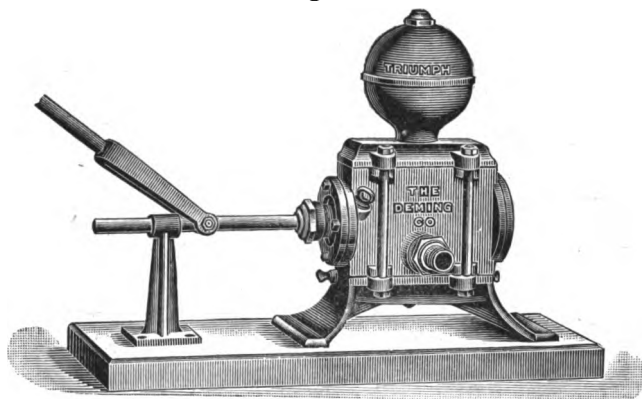
Fig. 603

Fig. 603, our "Triumph" Double-acting Force Pump, arranged for Power only, is made with Brass-lined Cylinder; the Valves, Valve Seats, Piston-rod, Plunger and other parts coming in contact with the water being made of Bronze Metal. For use in Railroad Stations, Factories, Breweries, Distilleries, etc., it will be found efficient and reliable.

The speed for this Pump is about 50 revolutions per minute, or less. Drip-cocks and primer on each Pump.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	*Suction Fitted for	Discharge Fitted for	Stroke	BRASS LINED		BRASS CYL.	
					Cipher	Price	Cipher	Price
1	2½ inch	1¼ inch Pipe	1 inch Pipe	4½ inch	Fallible	30 00	Familiar	58 00
2	3 "	1½ " "	1 " "	4½ "	Falsetto	31 00	Family	58 00
3	4 "	1½ " "	1½ " "	4½ "	Falsify	33 00	Famish	63 00
4	5 "	2 " "	1½ " "	5 "	Falter	45 00	Fanatic	95 00
5	6 "	2½ " "	2 " "	5 "	Falling	55 00	Fantasy	125 00

*Fitted for Iron Pipe as listed, but will be fitted for Hose if so ordered. Furnished with flat Air Chamber at same prices when so ordered.

With Brass Spring Piston, Nos. 1 and 2, \$3.00; No. 3, \$4.00; No. 4, \$6.00, and No. 5, \$8.00 extra list. In telegraphic orders add the word "Spring" to the Cipher word when Brass Spring Piston is wanted.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE "TRIUMPH" DOUBLE-ACTING FORCE PUMP

COMBINED WITH HORSE POWER

Fig. 613

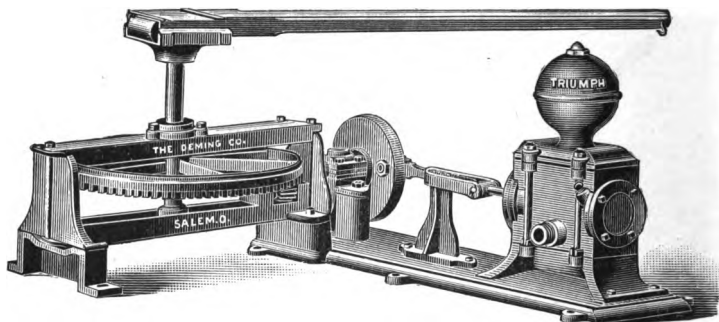


Fig. 613. Horse Power and Pump combined. The Pump is similar to **Fig. 603**, a desirable arrangement for pumping from shallow wells or streams, for Irrigating and other purposes, where steam power is too expensive or not easily accessible.

The working parts of the Pump are the same as **Figs. 601, 602 and 603**, *i. e.*, the **Cylinder is brass-lined**, the Plunger, Piston-rod, Valves and Valve Seats are Brass. Drip-cocks are provided for draining the Pump to prevent freezing. This Pump should be run at a speed of about 50 revolutions per minute.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Cyl.	* Suction Fitted for	* Discharge Fitted for	Stroke	BRASS LINED		BRASS CYLINDER	
					Cipher	Price	Cipher	Price
3	4 inch	1 ½ in. Pipe	1 ¼ inch Pipe	4 ½ in.	Fancier	150 00	Fantastic	215 00
4	5 "	2 " "	1 ½ " "	5 "	Fanciful	175 00	Farcical	250 00
5	6 "	2 ½ " "	2 " "	5 "	Fandango	190 00	Farewell	300 00

* Fitted for Iron Pipe as listed, unless ordered for Hose. Furnished with flat Air Chamber at same prices when so ordered.

With Brass Spring Piston, No. 3, \$4.00; No. 4, \$6.00; and No. 5, \$8.00, extra list. In telegraphic orders, add the word "Spring" to the Cipher word when Brass Spring Piston is wanted.

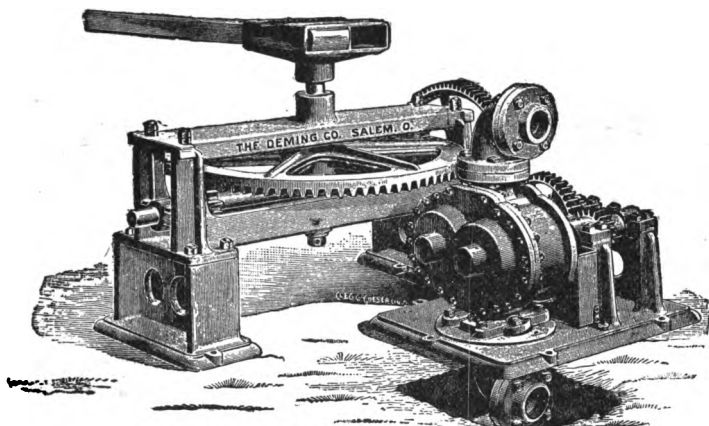
N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

HORSE POWER PUMPING OUTFIT

WITH HORSE POWER GEARED TO ROTARY PUMP

DESIGNED ESPECIALLY FOR IRRIGATION, DOMESTIC WATER SUPPLY, ETC.

Fig. 706



(The Horse Power only is designated as Fig. 700.)

Fig. 706 is adapted for domestic water supply, for irrigating and for filling street sprinkler tanks, etc., etc. Two sizes of pumps are made to attach to the power, the smaller one giving .55 gallons per revolution, and the larger Pump 1.05 gallons per revolution of pump shaft. One revolution of the master gear gives 23 turns of the pump shaft. No. 1 outfit discharges 15.4 gallons at each revolution of the master gear, and its capacity, the horse making $3\frac{1}{2}$ turns, is 53.9 gallons per minute. The large Pump discharges 29.4 gallons at each revolution of the master gear, and the capacity of the No. 2 outfit, the horse making $3\frac{1}{2}$ turns, is 102.9 gallons per minute. By a test it was found that a horse could make four turns per minute if kept steadily at work.

Unless otherwise ordered, the No. 1 Pump is fitted for 3 inch suction pipe and $2\frac{1}{4}$ inch discharge pipe, and the No. 2 pump is fitted for 4 inch suction pipe and 3 inch discharge pipe.

The Horse Power alone is designated as Fig. 700, and, as listed below, is furnished without Pump. It has very heavy shafts and genuine babbitt bearings, and throughout is heavier than other powers on the market. It may be used with one or two horses. The master wheel has 84 teeth and the pinion 14; therefore, the pinion shaft makes 6 revolutions to one turn of the master wheel.

SIZES AND PRICES.

No.	Description	Capacity per Revolution of Master Wheel	Cipher	Price
1	Horse Power and small Pump.....	15.4 Gallons	Hurtel	210 00
2	Horse Power and large Pump.....	29.4	Hurtful	240 00

FIG. 700 HORSE POWER, WITHOUT PUMPS

No.	Arranged for	Levers	Gearing	Cipher	Price
1	1 Horse	10 feet	6 to 1	Huddle	50 00
2	2 Horses	10 "	6 to 1	Hulled	60 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE DEMING HORSE POWER TRIPLEX IRRIGATING PUMP

FOR ONE OR TWO HORSES.

DIRECT CONNECTED.

ADAPTED TO PUMPING FROM SHALLOW WELLS, LAKES AND STREAMS.

Fig. 32

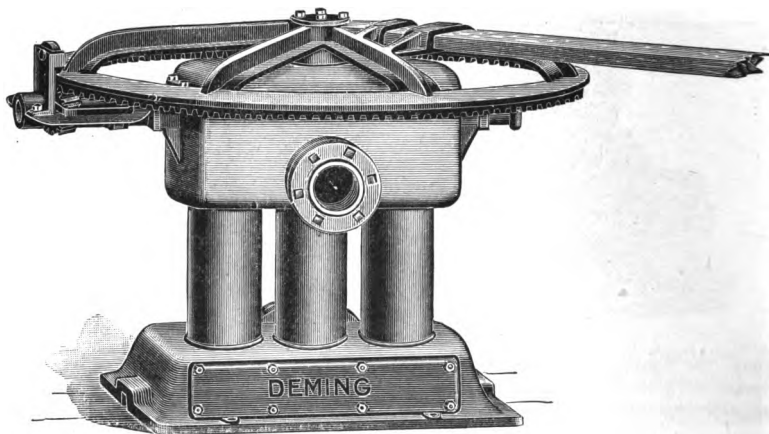


Fig. 32 is a complete direct connected Horse Power and Triplex Pumping outfit adapted for irrigation. The Pump is the same as in Figs. 30 and 31, and as may be supposed requires no fly wheel or back gearing. This outfit is a **most convenient and smooth running machine** for pumping water for irrigation or general supply, from shallow wells, cisterns, lakes and streams, and as it is furnished for either one or two horses its range of usefulness is considerable. The cut shows how simple is the mechanism of this apparatus. The horse will make an average of $3\frac{1}{2}$ turns per minute, and as the horse power is geared 8 to 1 the pump will run at 28 revolutions per minute. The table gives capacity per revolution of pump, also, capacity at 30 revolutions, and by these data the capacity at various speeds can readily be figured. For further description of Pump see Fig. 30.

Rules and Tables for Capacity, required Power and Speed of Pumps, pages 11 to 16.

DATA OF FIG. 32

Plungers.		Gals. per Rev.	Rev. per Min. of Pump	Gal. per Min. at 30 Rev.	Piping		For 1 Horse		For 2 Horses	
Diam.	Stroke				Suct.	Disch.	Cipher	Price	Cipher	Price
6 in.	6 in.	2.20	20 to 30	66	4 in.	4 in.	Oxlip	200 00	Oxgoad	210 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE DEMING TRIPLEX IRRIGATING PUMP

FOR BELT OR HORSE POWER

Fig. 30

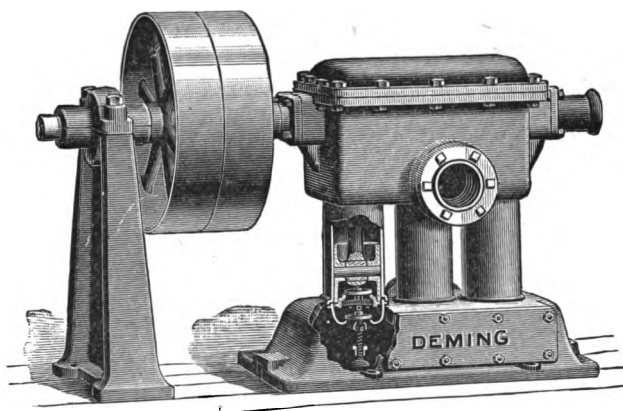


Fig. 30 represents our Crank Covered Triplex Irrigating Pump. It is furnished with tight and loose pulleys and outboard bearing, as listed. This Pump is usually placed on timbers, and the outboard bearing is a separate piece, which can be readily fastened on the same base level.

The sectional part of the engraving gives an idea of how readily the valves can be taken out for repairs. The base and cylinders are made in one casting. The large valve chamber cover may be removed very readily to get at the valves, and the shaft may also be removed by taking off the top cover, which is held on with through bolts. The shaft, packing box and end cap may be easily removed, and as the crank shaft is flanged and bolted together, it may be taken apart and out without any trouble. The pulleys regularly furnished are 24 inches in diameter by 5 inch face, but other sizes will be furnished when ordered. The suction and discharge flanges are fitted for pipe as shown in the list. It is well to have a strainer or foot valve on the bottom of suction pipe. This Pump is adapted for discharging against a head of 100 feet or less. It may be operated at 30 to 60 revolutions per minute, depending on the head it is to pump against. Usually, for irrigation, the water is delivered at a short distance above the Pump. This Pump is made in but one size, with 6 inch cylinder and 6 inch stroke. The amount of water required per minute per acre, for irrigation, varies in different sections, but ordinarily may be estimated at from three to five gallons per minute for each acre. This Pump can be operated by gasoline engine, steam engine, or horse power. As a complete outfit with horse power it is shown on next page as Fig. 81.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

DATA OF FIG. 30

PLUNGERS		Gals. per Rev.	Rev. per Minute	Gals. per Minute (Maxim'm)	PIPING		Pulleys	Floor Space of Base	Cipher	Price
Diam.	Stroke				Suction	Disch'ge				
6 in.	6 in.	2.20	30 to 60	110	4 inch	4 inch	24 x 5	18 x 34	Oxeye	200 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5,

HORSE POWER TRIPLEX IRRIGATING PUMP

FOR MEDIUM DEPTH WELLS

Fig. 31

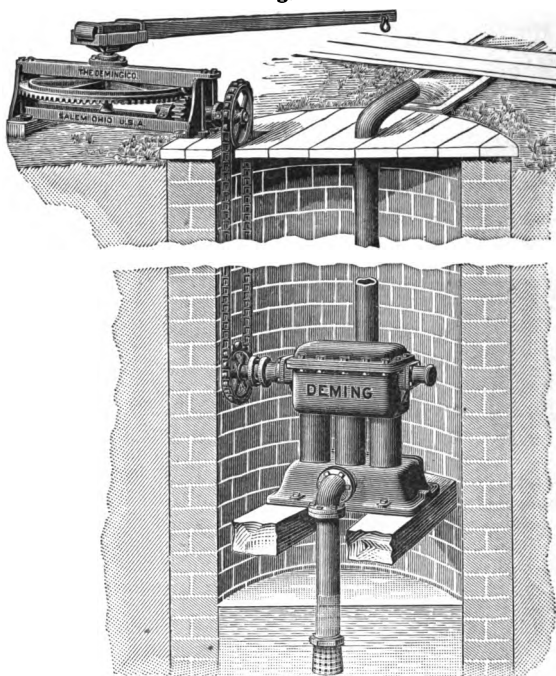


Fig. 31, the outfit shown in the above engraving, is made up of our **Fig. 700** Horse Power and Triplex Irrigating Pump, **Fig. 80**. As listed, and as shown in cut, it is furnished with sprocket wheel on pump shaft and sprocket wheel on horse power shaft, with chain for setting the Pump 30 feet in well. The extra list for chain for wells over 30 feet deep is given below.

The horse power is geared to run about 32 revolutions per minute, the horse making about three and a half turns, and the Pump at this speed delivers about 70 gallons of water per minute.

As listed there is no suction or discharge pipe furnished. The description of Pump is given on the preceding page.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

DATA OF FIG. 31

Fig. 31, comprising **Fig. 700** Horse Power, for one horse, with 24 inch sprocket wheel, and **Fig. 80** Irrigating Pump, with 16 inch sprocket wheels, and chain for 30-foot well.....(Cipher, *Oxfly*) 250 00

Fig. 31, same as above, but for two horses (Cipher, *Oxymel*).....260 00
Extra for wells over 30 feet deep, price *per foot* of well (Cipher, *Oxtail*)..... 1 50

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE "DEMING" TWO HORSE POWER AND DOUBLE BARREL PUMP

Fig. 703

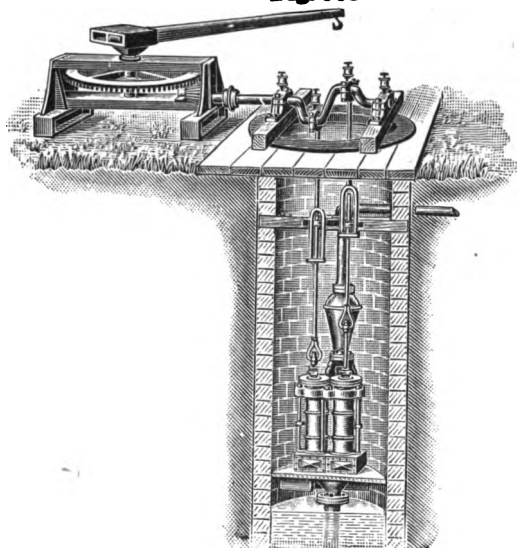


Fig. 703 is our Two Horse Power and Double Barrel Pump, Fig. 348, arranged for pumping out of wells with Wrought Iron Crank, Slings, Guides, etc. The prices given are for the outfits complete with Rods, etc., for wells 30 feet deep, but prices do not include either the Suction or Delivery Pipe. Roller Guides for the Rods to work through should be fastened to the wood work about every 12 feet.

When the outfits are wanted for wells over 30 feet deep, we supply the Rods and Roller Guides at the extra prices per foot as given below.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Diameter Cyl.	Stroke	Capacity per Revolution	Suction and Discharge Fitted for	Deepest Wells to which adapted	BRASS-LINED CYL.	
					Cipher	Price
2½ inch	10 inch	.42 gal.	1½ inch Pipe	150 feet	Obliterate	220 00
3 "	10 "	.61 "	2 "	100 "	Oboe	225 00
3½ "	10 "	.83 "	2½ "	80 "	Obrogate	250 00
4 "	10 "	1.09 "	2½ "	60 "	Obserate	275 00
5 "	10 "	1.70 "	3 "	40 "	Obtaining	325 00
6 "	10 "	2.45 "	3½ "	30 "	Obtuse	375 00

Extra per foot for Rods, for wells over 30 feet deep:

For 2½ inch Pump.....	0 80
" 3 " ".....	80
" 3½ " ".....	1 00
" 4 " ".....	1 20
" 5 " ".....	1 60
" 6 " ".....	2 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE "DEMING" HORSE POWER AND DOUBLE-ACTING PUMP

Fig. 702

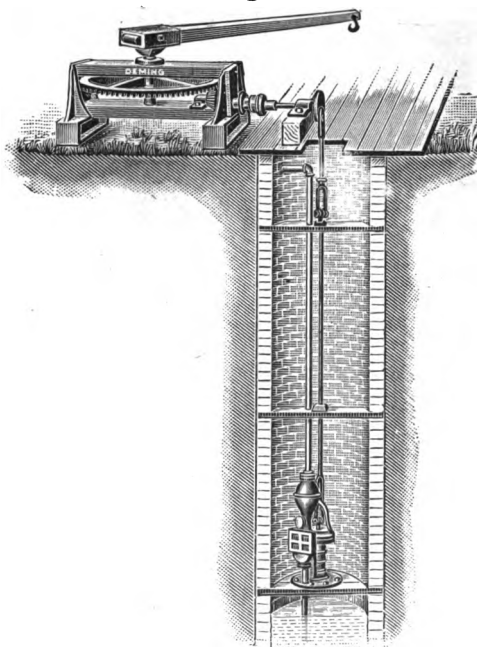


Fig. 702 represents our Double-acting Force Pump, Fig. 491, attached to Horse Power. These pumping outfits can be used for wells up to 50 feet deep. We furnish the Power, Pump, Connecting Rod, Guides, etc., complete, as shown in cut, for wells 30 feet deep, at prices given below. Prices do not include any Suction or Delivery Pipe. When these Pumps are wanted for wells over 30 feet deep, we furnish them for any depth at extra prices per foot as given below. These Powers are for one or two horses, and are furnished for one horse unless otherwise ordered. When wanted for two horses, we furnish them with extra poles, etc., as listed.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Diameter Cyl.	Stroke	Capacity per Revolution	Suction and Discharge Fitted for	BRASS LINED CYL.	
				Cipher	Price
3 inch	10 inch	.61 gal.	1½ inch Pipe	Oafish	145 00
4 "	10 "	1.08 "	2 "	Oblate	170 00
5 "	10 "	1.70 "	2½ " "	Opinicus	190 00

Extra attachments for two horses, add \$10.00 to above lists.

Extra per foot for Rods, for Wells over 30 feet deep:

For 3 inch Pump.....	0 60
" 4 " ".....	1 00
" 5 " ".....	1 25

The horse walking at an ordinary speed will give about 20 revolutions of the Crank Shaft per minute.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE DEMING DEEP WELL HORSE-POWER PUMPING OUTFIT

Fig. 704

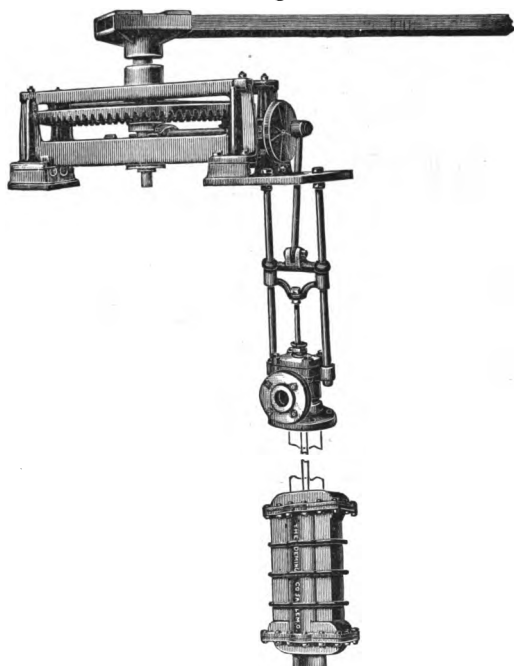


Fig. 704 is fully illustrated above. It is the simplest and most satisfactory Deep Well Horse-Power Pumping Outfit manufactured. It may be erected over a well without trouble. Fig. 319 double-acting iron cylinder, fitted for $\frac{3}{4}$ -inch iron pipe plunger rod, is used in connection with heavy horse-power and working head suspended from a substantial sub-base.

The complete outfits, *less pipe and plunger rod*, are listed below, with depth of well for which each is adapted. Pump makes 20 revolutions per minute at ordinary speed of horse.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

Diameter Cylinder	Stroke	Capacity per Revolution	Suction and Discharge fit'd for Pipe	Depth Well Adapted for	Cipher	Price
$2\frac{1}{4}$ inch	7 inch	.24 gal.	2 inch	100 feet	Hobby	110 00
$2\frac{3}{4}$ "	10 "	.34 "	2 "	100 "	Hobble	112 00
3 "	7 "	.43 "	2 "	75 "	Hobit	112 00
3 "	10 "	.61 "	2 "	75 "	Hobnob	116 00
4 "	7 "	.76 "	$2\frac{1}{2}$ "	50 "	Hobbist	114 00
4 "	10 "	1.08 "	$2\frac{1}{2}$ "	50 "	Hobiler	118 00

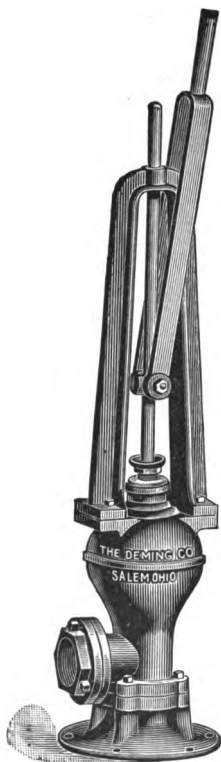
Above Outfits are for one horse. For two horses add \$10.00 to above lists.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

MINE AND DEEP WELL PUMP HEAD

WITH PITMAN FOR POWER

Fig. 435



This Force Pump Working Head is especially adapted for use in mines, and Artesian or Deep Wells.

The Suction pipe is attached to a Flange in the Base and the Discharge pipe to a Flange on the side of the Air Chamber. Artesian Well Brass Cylinders, Figs. 311 and 324, (shown elsewhere) are best adapted for use in connection with these Working Heads.

We make two sizes of this Working Head, designated as Nos. 1 and 2; the former having ten inch and sixteen inch stroke; and the latter, sixteen, twenty-four and thirty inch stroke, as ordered.

These Pump Heads may be fitted for $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, or 1 inch rod; or $\frac{3}{8}$, $\frac{1}{2}$, or $\frac{3}{4}$ inch pipe for Piston-rod; but No. 2 is always fitted with $1\frac{1}{8}$ inch rod for $\frac{3}{4}$ inch pipe; and No. 1 with $\frac{3}{8}$ inch rod for $\frac{1}{2}$ inch pipe, unless otherwise ordered.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	*Suction Fitted for	*Discharge Fitted for	Length of Stroke	Cipher	Price
1	$1\frac{1}{4}$ inch Pipe	$1\frac{1}{4}$ inch Pipe	10 inches	Deceit	30 00
1	$1\frac{1}{4}$ " "	$1\frac{1}{4}$ " "	16 " "	Deceitful	35 00
2	3 " "	3 " "	16 " "	Deceive	50 00
2	3 " "	3 " "	24 " "	Decency	60 00
2	3 " "	3 " "	30 " "	Decent	70 00
2	3 " "	3 " "	36 " "	Decigram	80 00

*No. 1 Working Head can be fitted for any size Suction and Discharge Pipe up to and including 3 inch; and No. 2 can be fitted for Suction Pipe up to and including 6 inch, with Discharge Pipe up to and including 4 inch. They will be fitted as listed, unless otherwise ordered.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

COUNTER-SHAFT FOR OPERATING PUMPS

Fig. 698

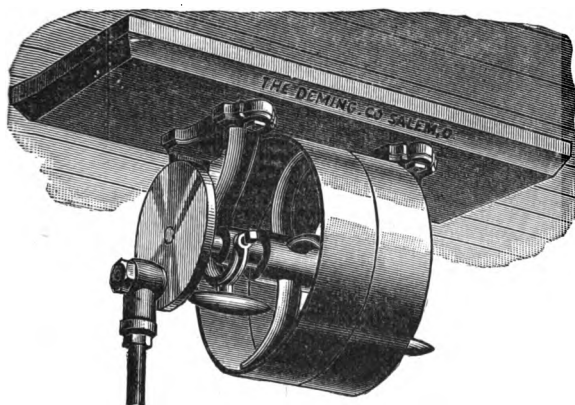


Fig. 698 is a counter-shaft for light duty, made in two sizes and furnished with stub rod, as shown. It may be used in an inverted position, resting on the foundation.

It is intended to be used with light working heads, as Figs. 434, 436, 433, etc.

Wood base or frame is not furnished.

FIG. 698

No.	Stroke	Pulleys	Cipher	Price
1	6 in., 8 in.	16 x 4 in.	Harshly	30 00
2	6 in., 8 in., 10 in.	18 x 4 in.	Harvest	35 00

GEARED COUNTER-SHAFT FOR OPERATING PUMPS

Fig. 699

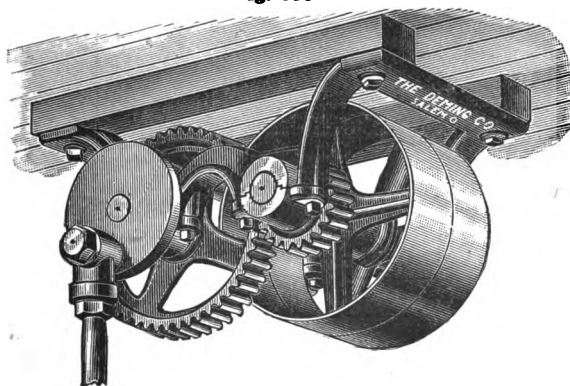


Fig. 699 is a geared counter-shaft for heavier duty, and may be used as shown or in an inverted position. It is intended for use with large working heads, such as Figs. 435, 439, also Pumps 491, 487, etc. Made in two sizes. Wood frame is not furnished.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

FIG. 699

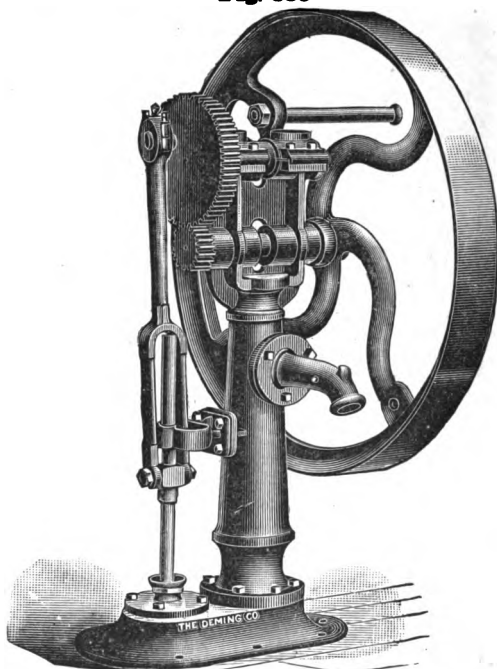
No.	Stroke	Pulleys	Cipher	Price
1	6 in., 8 in., 10 in.	16 x 4 in.	Hassock	50 00
2	10, 12, 16, 20, 24 in.	18 x 4 in.	Hastily	60 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

DEEP WELL FORCE PUMP STANDARD

WITH GEARING AND PULLEY FLY-WHEEL

Fig. 586



The Pump Standard illustrated herewith is adapted to elevating water from very Deep Wells and to a great height, by either Hand or Power. The Fly-wheel is made heavy and broad so that a belt can be attached for running by power, and a Handle is also connected for operating by hand. The gearing is arranged to increase the power three to one. In elevating water, or conveying to a great distance, a Pipe Flange is used, and is furnished instead of the Spout when ordered.

Cylinders or Working Barrels for use with these Pump Standards, are shown and listed elsewhere.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	*Fitted For	Stroke	Pulley Fly-Wheel	Discharge	Cipher	Price
1	1½ in. Pipe	7 inches	36x4½ inches	Plain Spout or Flange	Bravado	65 00
2	1½ " "	7 "	36x4½ "	With Air Chamber	Bravely	68 00
3	1½ " "	7 "	36x4½ "	Air Chamber & Cock	Braving	70 00

*Fitted for 1¼, 1½ or 2 inch Pipe, but always for 1½ inch, unless otherwise ordered.

N. B. Nos. 2 and 3 are the same as No. 1, except that No. 2 has Air Chamber, and No. 3 Air Chamber and Cock on Spout. The cut shows No. 1 with Spout. No. 1 is always furnished with Spout unless ordered with Flange.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

DEEP WELL FORCE PUMP STANDARD

WITH GEARING AND TIGHT AND LOOSE PULLEYS

Fig. 569

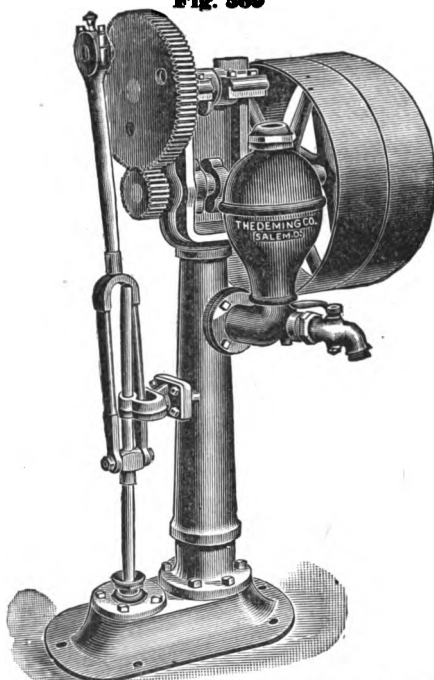


Fig. 569 is similar to Fig. 586, but arranged with adjustable stroke (6, 8 and 10 inch) and tight and loose Pulleys for operating by belt. The Gearing is three to one. Any of our Independent Cylinders of suitable length may be used in connection with this Standard.

Fig. 324 or 311, Artesian Well Brass Cylinders are best adapted for Deep Wells.

Fly Wheel Pulley instead of Tight and Loose Pulleys furnished when desired. See list below. Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	*Suction Fitted for	Stroke	Size of Pulleys	Discharge	WITH PULLEYS		WITH FLY WHEEL	
					Cipher	Price	Cipher	Price
1	1½ in. Pipe	6, 8 and 10 inch	20x5 in.	With Flange for 1½ inch Pipe With Double Discharge Air Chamber With Air Chamber and Cock	Bravo	78 00	Brawny	75 00
2	1¼ " "	6, 8 " 10 "	20x5 "		Brawl	81 00	Brayer	78 00
3	1½ " "	6, 8 " 10 "	20x5 "		Brawler	83 00	Brazen	80 00

*Fitted for 1½, 1¼, 2, 2½ or 3 inch Suction; and 1½, 1¼, 2 or 2½ inch Discharge Pipe, but always fitted for 1½ inch Suction and 1½ inch Discharge, unless otherwise ordered.

N. B.—The above cut of Fig. 569 represents the No. 3 Pump with Air Chamber and Cock.

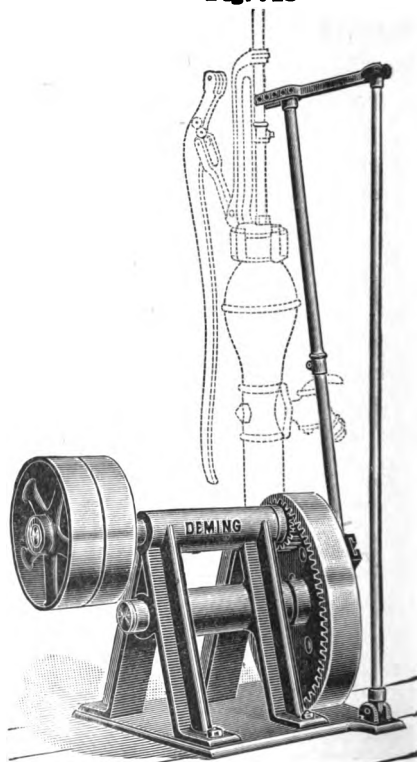
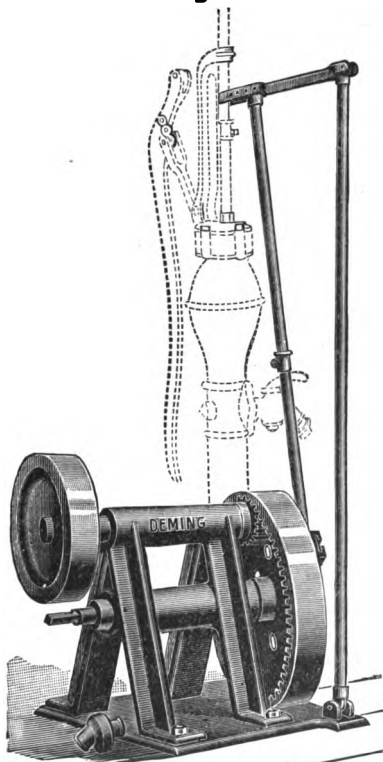
In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE DEMING HORSE POWER PUMPING JACKS

WITH SUB-BASE FOR WIND MILL STANDARD

Fig. 717

Fig. 718



Figs. 717 and 718 are Pumping Jacks which can be operated by Horse Power, small Gasoline Engine or by Belt from any sort of motive power. They are also useful where a Wind Mill is liable to get out of order, or does not run steadily, or the wind is so irregular that pumping must be done by other means.

Fig. 717 is provided with a Universal Coupling or Knuckle Joint, so much used for connecting horse powers to agricultural machinery. A Fly Wheel is also provided to give smoothness of motion.

Fig. 718 is the same as **Fig. 717**, except that it is not provided with the Knuckle Joint, but has tight and loose Pulleys for driving by belt. Both are internally geared at a 6 to 1 reduction from large to small gear. Both are provided with an extended Sub-base to receive a Pump Standard.

Figs. 717 and 718 may be connected to such Standards and Working Heads as **Figs. 444, 484, 436, 434, 439**, or to Irrigating Pumps, **Figs. 475 and 476**, also to Irrigating Cylinder **Fig. 380**. Irrigation may thus be accomplished in a small way at a very moderate cost for machinery.

The Standard shown in outline is not included in price.

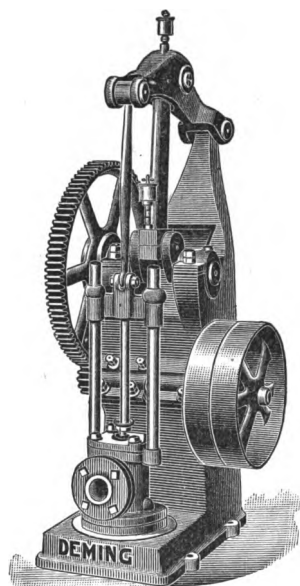
SIZES AND PRICES

Fig.	Stroke Inches	Connections	Gear Ratio	Cipher	Price Each
717	6, 8 and 10	Tumbling Rod Coupling for Horse Power	6 to 1	Humbug	40 00
718	6, 8 and 10	Tight and Loose Pulleys 10 in. x 3 1/2 in....	6 to 1	Humdrum	40 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED DEEP WELL POWER WORKING HEAD WITH TIGHT AND LOOSE PULLEYS

Fig. 68



The Geared Deep Well Power Pump Head, shown by cut, is arranged to run on 8-inch or 12-inch 30 to 40 turns per minute. It is very compactly and strongly built, and is adaptable to wells 200 feet deep and less, and to cylinders up to $3\frac{3}{4}$ -inch diameter. Figs. 311 and 324 are recommended. It makes a very desirable pump for private water supply, manufacturing plants, farms, etc. As here shown it is arranged with tight and loose pulleys for belt driving, but can, if desired, be made for direct connection to gas engine or electric motor. The gearing is machine cut. Furnished with Oilers or Grease Cups.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

DATA OF FIG. 68

Stroke	* PIPING		Gear Ratio	Pulleys	Cipher
	Suction	Discharge			
8 inch	4½ inch	2½ inch	8 to 1	16 x 3	Ovolo
12 "	4½ "	2½ "	8 " 1	18 x 4	Ovology

* Always fitted as above unless otherwise ordered. Prices given on application.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

DEEP WELL POWER WORKING HEAD

ELECTRIC DRIVEN

Fig. 66

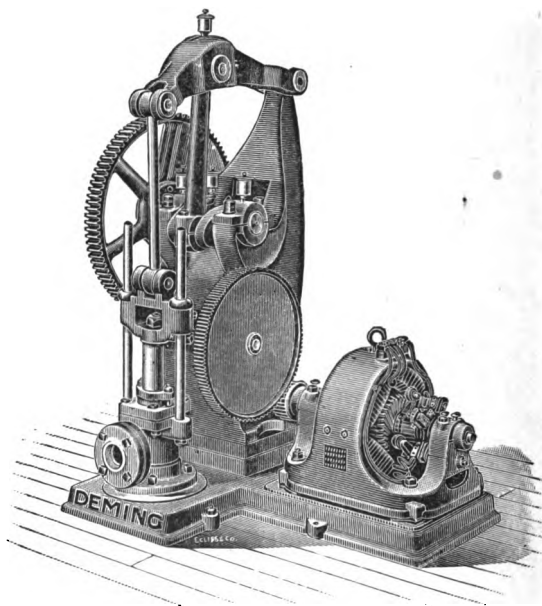


Fig. 66, herewith shown, is our **Fig. 68** Deep Well Power Working Head, illustrated on preceding page, so modified as to direct connect to an electric motor by intermediate gearing. Both pump and motor are mounted upon a continuous cast iron sub-base in a substantial and compact manner. All gearing is machine cut and unless otherwise ordered we furnish the motor pinion of rawhide. Where Electric Power is available this makes a most serviceable and economical outfit. If desired, we can furnish motor at extra cost. In corresponding, state voltage of current, and whether direct or alternating, also state depth of well and total lift.

For Cylinders, we recommend either of our **Figs. 311** or **324**.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

DATA OF FIG. 66

Stroke	PIPING		Gear Ratio	Intermediate Gearing	Cipher
	Suction	Discharge			
8 inch	4 $\frac{1}{2}$ inch	2 $\frac{1}{2}$ inch	8 to 1	Special	Oval
12 "	4 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "	8 to 1	"	Oval

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

DEEP WELL POWER WORKING HEAD

GASOLINE ENGINE DRIVEN

Fig. 69

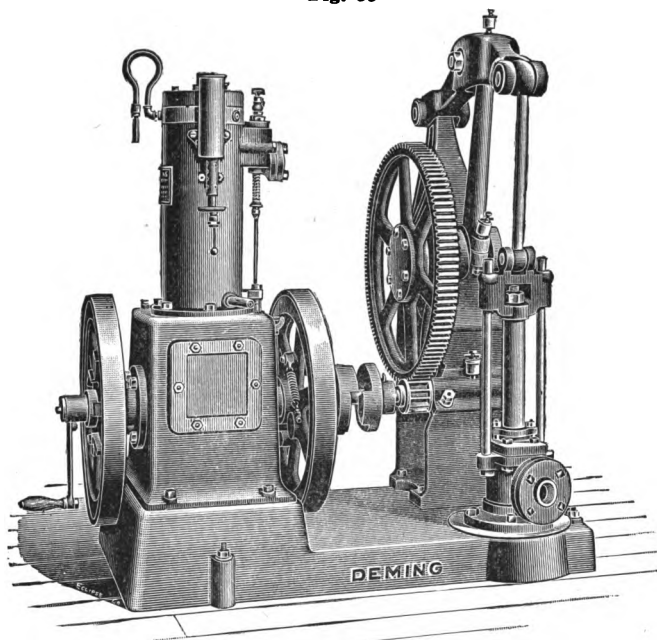


Fig. 69 represents our Fig. 68 Deep Well Power Working Head, arranged for direct connection to a Gas or Gasoline Engine.

In isolated places where electric or other power is not available, and where space is an important item, this makes a most desirable outfit and one which we can recommend as substantial and durable.

When not pumping the engine can be thrown out of gear with the pump and used for furnishing power for other purposes.

In corresponding, state depth of well, height above ground to which water is to be delivered, and quantity to be pumped.

We can furnish sub-base for any make of Gas Engine of proper size.

We recommend Figs. 311 or 324 Deep Well Cylinders.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

DATA OF FIG. 69

Stroke	PIPING		Gear Ratio	H. P. of Engine	Cipher
	Suction	Discharge			
8 inch	4½ inch	2½ inch	8 to 1	Special	Orant
12 "	4½ "	2½ "	8 to 1	"	Oven

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

ADJUSTABLE STROKE DEEP WELL POWER WORKING HEAD

WITH INTERNAL CRANK GEAR AND
DIFFERENTIAL PLUNGER

Fig. 77

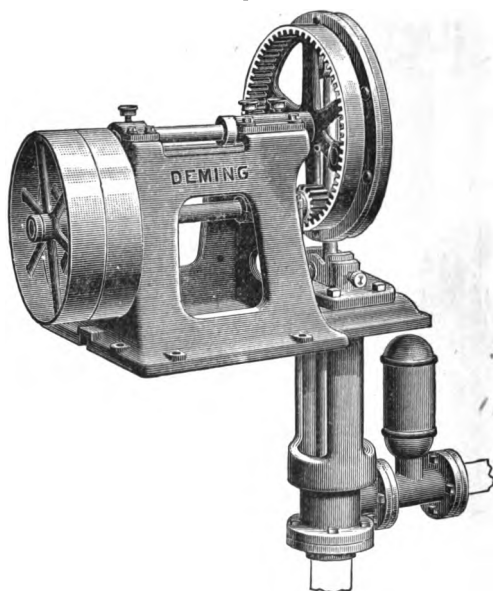


Fig. 77, illustrated herewith, is a most compact, rigid, and smooth running machine. The guides and cross-head being under the base bring the packing head, air chamber and discharge connections together in the pit, where they ought to be, and these features, together with the Internal Crank Gear, admit of the low frame and solid construction which are always appreciated by engineers.

This outfit is adapted for wells up to 400 feet in depth. The cylinders most used are **Figs. 311 and 324**, shown elsewhere.

The shafts are steel, and bearings are babbitted and furnished with oilers or grease cups.

The adjustable stroke gives this machine a wide range of adaptability.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

DATA OF FIG. 77

Adjustable Stroke	* PIPING		Gear Ratio	Pulleys	Cipher
	Suction	Discharge			
10, 12 and 16 inch	4½ inch	2¾ inch	6 to 1	24 x 5	Okheal

* Fitted as in table unless otherwise ordered. Prices on application.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

POWER ARTESIAN WORKING HEAD

Fig. 80

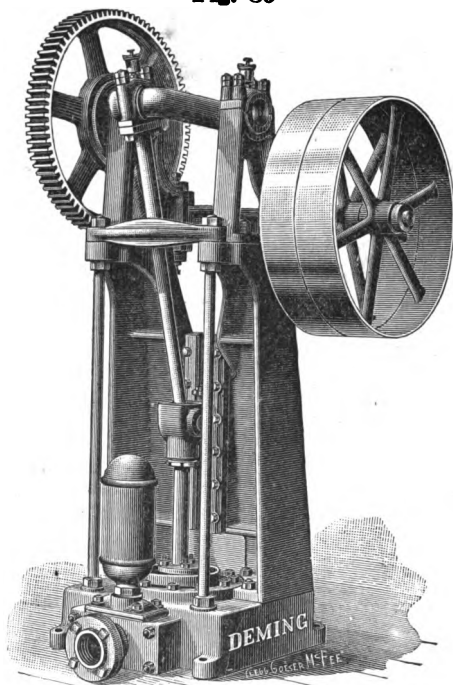


Fig. 80 is for general service on Wells up to 400 feet lift. It has ample bearing on the foundation. The Cylinder and its Pipe can be removed from the Well without moving the Working Head from its place. The Discharge can be taken from front or back as desired. Our Check Valve has a very low lift and is the full area of a 4 inch discharge pipe. It can be taken out or repaired without breaking any pipe connections.

The Differential Plunger is connected to the cross head by our patented joint and is uncoupled without turning the rods in the well.

The Main Frame is very strong and so open as to leave the working parts perfectly easy of access. The Gearing is machine cut; Crank shaft of open hearth steel; Connecting rod of wrought iron.

Both Connecting rod bearings are of Bronze or Babbitt lined; the Cross Head Pin runs in oil. The regular fitting is made with Tight and Loose Pulleys; Gearing for electric motor or gasoline engine connection is furnished to order.

DATA OF FIG. 80

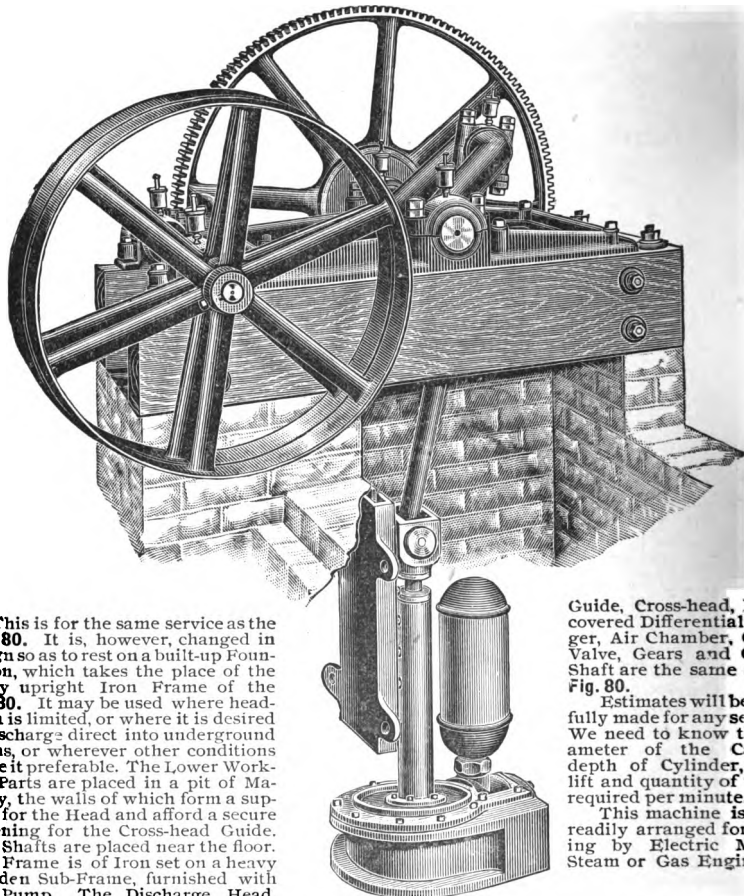
Stroke	PIPING		Gear Ratio	Pulleys	Cipher
	Cylinder	Discharge			
16 inch	3 in. to 6 in.	2½ in. to 4 in.	4 to 1	30x6	Orient
24 "	3 " " 8 "	2½ " " 4 "	4 " 1	36x6	Oriental

Prices upon application.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

POWER ARTESIAN WORKING HEAD

Fig. 81



This is for the same service as the Fig. 80. It is, however, changed in design so as to rest on a built-up Foundation, which takes the place of the heavy upright Iron Frame of the Fig. 80. It may be used where head-room is limited, or where it is desired to discharge direct into underground Mains, or wherever other conditions make it preferable. The Lower Working Parts are placed in a pit of Masonry, the walls of which form a support for the Head and afford a secure fastening for the Cross-head Guide. The Shafts are placed near the floor. The Frame is of Iron set on a heavy Wooden Sub-Frame, furnished with the Pump. The Discharge Head,

Guide, Cross-head, Brass-covered Differential Plunger, Air Chamber, Check Valve, Gears and Crank Shaft are the same as for Fig. 80.

Estimates will be carefully made for any service. We need to know the diameter of the Casing, depth of Cylinder, total lift and quantity of water required per minute.

This machine is very readily arranged for driving by Electric Motor, Steam or Gas Engine.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

DATA OF FIG. 81

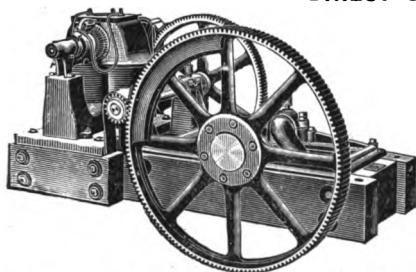
Stroke	PIPING		Gear Ratio	Pulleys Inches	Cipher
	Cylinder	Discharge			
16 inch	3 in. to 6 in.	2½ in. to 4 in.	4 to 1	30x6	Osculate Osculation Oppressor
24 "	3 " " 8 "	2½ " " 4 "	4 " 1	36x6	
24 "	3 " " 8 "	2½ " " 4 "	8 " 1	36x6	

Prices upon application.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

DEEP WELL PUMPING MACHINERY

DIRECT CONNECTED



Showing Fig. 81 Pump direct connected to Electric Motor.

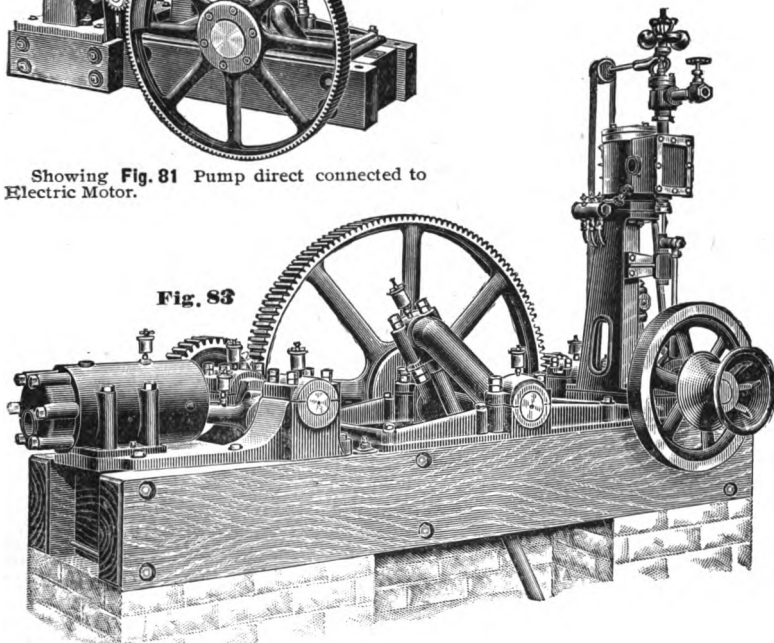
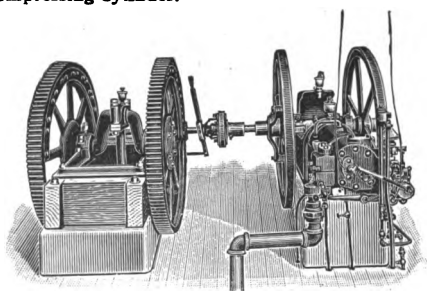


Fig. 83, showing Fig. 81 Pump direct connected to Steam Engine, especially arranged with Winch Head and Air Compressing Cylinder.



Showing Fig. 81 Pump with Special Heavy Double Gears, direct connected by Friction Cut-off Coupling to Otto Gasoline Engine.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

GEARED POWER WORKING HEAD

WITH DOUBLE CYLINDER PUMP

Fig. 709

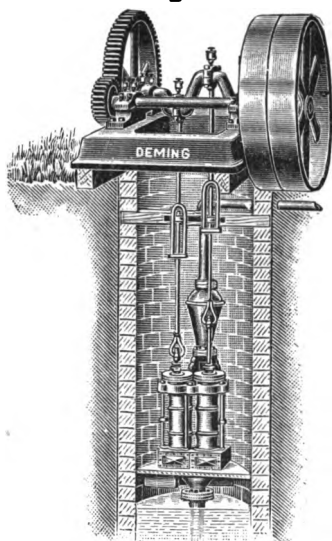


Fig. 709 illustrates our Geared Power Working Head with **Fig. 348** Double Cylinder Pump, for Deep Wells.

This Power Head has an open hearth Steel Crank Shaft, mounted in suitable babbitted bearings, bolted to a heavy cast iron base, furnished with Cut Gears, Forged Connecting Rods, suitable Pitmans, Guide Rods and Guides, making a complete outfit for an open Deep Well.

The Double Cylinder Pumps are furnished either with Iron Cylinders (Brass Lined), or All Brass, as desired.

They are fitted with Brass Plungers, Brass Rods and Stuffing Boxes, swivel Stub Rod for welding to connecting rods or joining with coupling. Top and bottom Water Chambers are Iron.

All Valves are easily accessible by taking off valve box cap.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

Prices quoted on application.

DATA OF FIG. 709

Diam. of Cyl.	Stroke	Capacity per Revolution	Suction and Discharge Fitted for	Deepest Wells to which adapted	BRASS-LINED CYL.	BRASS CYL.
					Cipher	Cipher
2½ inch	10 inch	.42 gal.	1½ inch Pipe	300 feet	Obversely	Octant
3 " "	10 " "	.61 " "	2 " " "	300 " "	Occlusion	Octave
3½ " "	10 " "	.83 " "	2½ " " "	250 " "	Occupant	Octillion
4 " "	10 " "	1.09 " "	2½ " " "	200 " "	Occurrence	Ocular
5 " "	10 " "	1.70 " "	3 " " "	150 " "	Oceanic	Oddity
6 " "	10 " "	2.45 " "	3½ " " "	100 " "	Ocelot	Odometer

These Pumps can be run from 25 to 35 revolutions per minute.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

GEARED POWER WORKING HEAD

WITH TRIPLE CYLINDER PUMP

Fig. 710

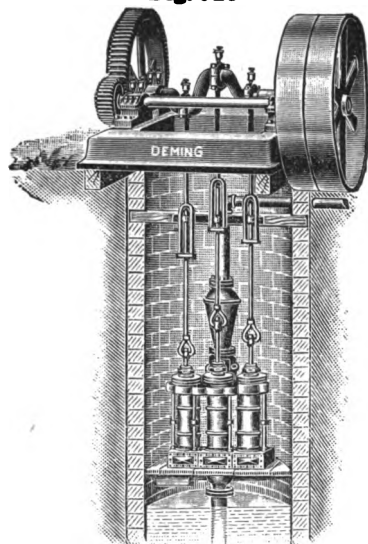


Fig. 710 illustrates our Geared Power Working Head with Triple Cylinder Pump for Deep Wells. This Power Head is similar to **Fig. 709**, but is made heavier and stronger to stand the extra work of the Three Cylinder Pumps. Workmanship and design are of highest character. They are furnished with Steel Crank Shaft, Cut Gears, Baobitt Lined Boxes, suitable Pitmans, Guide Rods and Guides. These Cylinders always have Iron Top and Bottom Water Chambers, Brass Plungers, Plunger Rods and Stuffing Boxes. These Pumping Outfits furnish the most economical way of securing a supply of water from a deep open well for irrigation or other purposes.

Complete estimates furnished on application.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

DATA OF FIG. 710

Diam. of Cyl.	Stroke	Capacity per Revolution	Suction and Discharge Fitted for	Deepest Wells to which adapted	BRASS-LINED CYL.	BRASS CYL.
					Cipher	Cipher
3 inch	10 inch	.91 gal.	2 inch Pipe	300 feet	Odorate	Oldish
3½ "	10 "	1.25 "	2½ "	250 "	Odorless	Omentum
4 "	10 "	1.63 "	3 "	200 "	Offertory	Omnibus
5 "	10 "	2.55 "	3½ "	150 "	Officiate	Omnipotent
6 "	10 "	3.67 "	4 "	100 "	Off-pring	Oozing

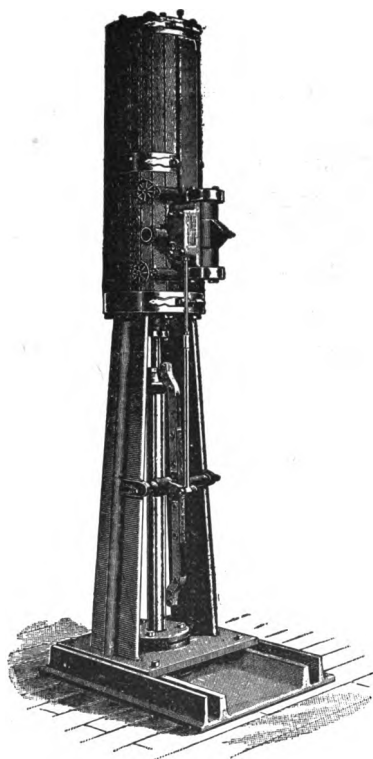
These Pumps can be run from 25 to 35 revolutions per minute.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

VERTICAL STEAM PUMPING ENGINE

FOR DEEP WELLS

Fig. 438



The Direct-acting Vertical Steam Pumping Engine is adapted for pumping from Deep Drilled Wells, or from Artesian Wells where the water does not rise high enough to use a Suction Pump.

When used in connection with our Artesian Well Brass Cylinders, Fig. 324, this Pumping Engine is adapted for wells of any depth, delivering the water to any desired point. The Flange at base of Pump is threaded for pipe or casing of size to suit pipe connecting to the working barrel. An Air Chamber may be formed by a "Tee" in the discharge pipe to which is attached a vertical piece of pipe capped at the upper end.

We furnish Air Chambers with Check Valve when ordered, at an additional cost.

This Steam Pumping Engine is made in nine sizes, listed below. The entire Working Head may be moved on its base for repairs or withdrawal of the Plunger.

In ordering or asking for estimates be sure to give us full particulars as regards your well, stating kind, size inside, depth, distance from top that water stands when pumping, amount of water required per hour, how high you wish to raise water above ground, the steam pressure available, etc.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Diameter Steam Cylinder	Length of Stroke	Size of Base in inches	Height	Size of Steam Pipe	Size of Exhaust Pipe	Shipping Weight	Price Steam End Only
4½	4½ in.	16 in.	16x16	4 ft. 2 in.	¾ in.	1 in.	275 lbs.	140 00
5	5 "	20 "	21x21	5 " 3 "	1 "	1 ¼ "	450 "	175 00
6	6 "	25 "	24x24	6 " 3 "	1 ¼ "	1 ½ "	700 "	225 00
7	6 "	36 "	24x24	8 " 2 "	1 ½ "	1 ½ "	850 "	260 00
8	8 "	25 "	26x26	6 " 4 "	1 ½ "	1 ½ "	950 "	300 00
9	8 "	36 "	26x26	8 " 3 "	1 ½ "	1 ½ "	1150 "	325 00
10	10 "	30 "	29x35	7 " 6 "	1 ½ "	2 "	1500 "	375 00
11	10 "	36 "	29x35	8 " 8 "	1 ½ "	2 "	1700 "	400 00
12	12 "	36 "	32x38	8 " 10 "	2 "	2 ½ "	2200 "	500 00

Sight Feed Lubricators are furnished with all the above Sizes.

For Brass Piston and Plunger, add 5 per cent.

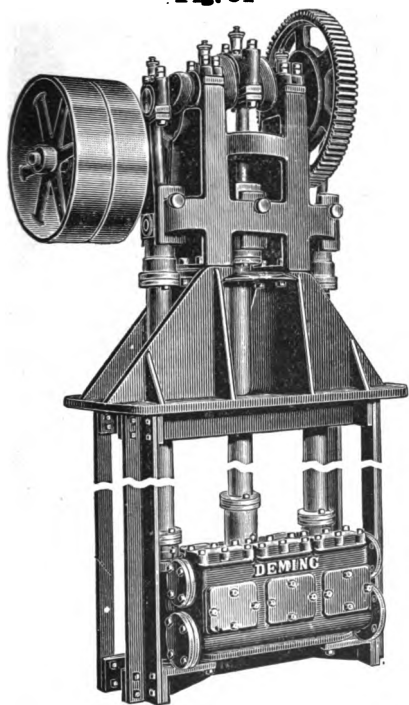
For Jacketed Cylinder and Brass Bands, add 10 per cent.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

SINGLE-ACTING TRIPLEX PUMP

FOR MEDIUM DEPTH WELLS

Fig. 54



This cut represents our Triplex Pump, with Cylinders and Valve Chamber detached and lowered in well. It is made for practically the same service as our Fig. 50 Triplex Pump, the Upper Works, Valve Chamber and Cylinders being of the same design. The Cylinders can be dropped a distance of twenty-five feet below the surface and Suction Pipe may be attached to extend ten or fifteen feet below the Pump Cylinders. The Cylinders are fastened to the Upper Base by heavy angle irons and supported in the well by suitable timbering. The Cross Heads are connected to the Plungers by extra heavy pipe of suitable sizes.

Prices on application.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

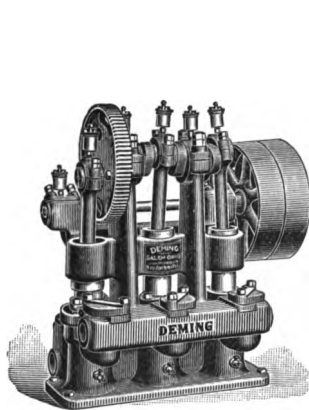
DATA OF FIG. 54

PLUNGERS		Gallons per Revolution	Revolutions per Minute	Gallons per Minute	PIPING		Gear Ratio	Pulleys Inches	Cipher
Diameter	Stroke				Suction	Discharge			
4 inch.	6 inch.	.98	45 to 60	59	2½ in.	2 inch.	5 to 1	20x5	Ostend
5 "	6 "	1.53	45 " 60	91	3 "	2½ "	5 " 1	24x5	Osteine
5½ "	8 "	2.46	40 " 50	123	4 "	3 "	5 " 1	28x6	Ossicle
6 "	8 "	2.94	40 " 50	147	4 "	3 "	5 " 1	28x6	Ostic
7 "	8 "	4.00	40 " 50	200	5 "	4 "	5 " 1	30x8	Ostler
8 "	8 "	5.22	40 " 50	261	5 "	4 "	5 " 1	36x8	Ostmen

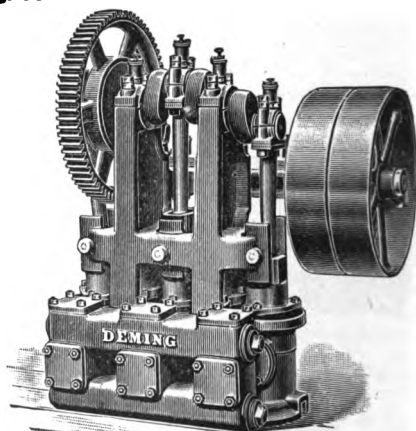
In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

GENERAL SERVICE SINGLE-ACTING TRIPLEX PUMPS

Fig. 50



2½x3 in. to 4x4 in. sizes



4x6 in. to 5½x8 in. sizes

Fig. 50. Triplex Pump, shown in these illustrations, is for 150 lbs. pressure and embodies the best results of many years experience in designing and placing this class of Pumps. They stand without an equal for efficiency and enduring quality for all services where Power Pumps can be used. In Mills and Factories for Tank and Boiler Feeding and Fire Service their value is recognized where economy of fuel is sought. We have many in use in Water-Works Plants, operated by Electric Motors and Gas, Gasoline and Oil Engines. These will be found in the pages following, and are all variations for special requirements, of the best Power Pump yet produced—the Triplex.

The construction varies in the different sizes but embodies in each, Steel Crank Shafts in one piece; Cut Gearing; Pinion shafts adjustable toward and from crank shafts; ample bearings; outside guided and outside packed Plungers (Plungers have no rubbing contact in the Pump Base); large valve areas; Suction and Discharge openings on either end of Pump, and in the large sizes the Valve Chamber can be attached to either side of the base.

The importance of our method of design in balancing the strains on the Crank Shaft, in lubricating the Cross Head Pins, and guiding the Plungers, cannot be overestimated in prolonging the life of the Pump.

Air Chambers furnished without additional cost on all sizes if required.

Valves for thick liquids; Bronze Fittings for sulphur waters or Acids, furnished if required.

Rawhide Pinions and special pulleys for Electric Motor attachment furnished extra, if ordered.

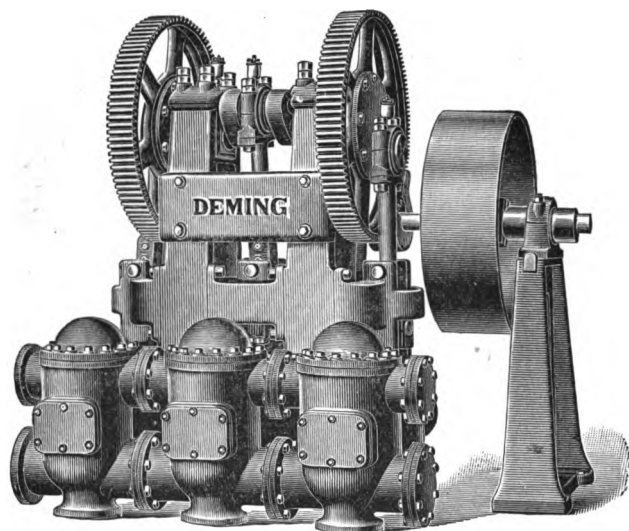
For data see following page.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

GENERAL SERVICE SINGLE-ACTING TRIPLEX PUMP

Fig. 50



(Above cut shows 9 x 10 and 10 x 10 sizes.)

For description of this Pump, see preceding page.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

DATA OF FIG. 50

PLUNGERS		Gallons per Revolution	Revolutions per Minute	Gallons per Minute	PIPING		Gear Ratio	Pulleys	Cipher
Diameter	Stroke				Suction	Disch'ge			
2 in.	2 in.	.081	60	4.8	1½ in.	1 inch	5 to 1	8 x 2	Obese
2½ "	2 "	.127	60	7.6	1½ "	1 "	5 " 1	10 x 2	Obelize
2½ "	3 "	.19	60	11	2 "	1½ "	5 " 1	12 x 3	Oaken
3 "	3 "	.27	60	16	2 "	1½ "	5 " 1	14 x 3	Oath
3½ "	3 "	.37	60	22	2 "	1½ "	5 " 1	16 x 3	Oakling
3½ "	4 "	.50	60	30	2½ "	2 "	5 " 1	18 x 4	Obelus
4 "	4 "	.65	60	39	2½ "	2 "	5 " 1	18 x 4	Oakum
4 "	6 "	.98	60	59	2½ "	2 "	5 " 1	20 x 5	Oarsman
5 "	6 "	1.53	60	91	3 "	2½ "	5 " 1	24 x 5	Oasis
5½ "	8 "	2.46	60	147	4 "	3 "	5 " 1	28 x 6	Oatmeal
6 "	8 "	2.94	60	175	4 "	3 "	5 " 1	28 x 6	Obduration
7 "	8 "	4.00	45 to 60	240	5 "	4 "	5 " 1	30 x 8	Obdurate
8 "	8 "	5.22	45 to 60	313	5 "	4 "	5 " 1	36 x 8	Obiter
8½ "	8 "	5.90	45 to 60	354	6 "	5 "	5 " 1	36 x 8	Obdure
9 "	10 "	8.26	35 to 50	413	8 "	6 "	5 " 1	42 x 10	Obloquy
10 "	10 "	10.20	35 to 50	510	8 "	6 "	5 " 1	44 x 12	Obsignate

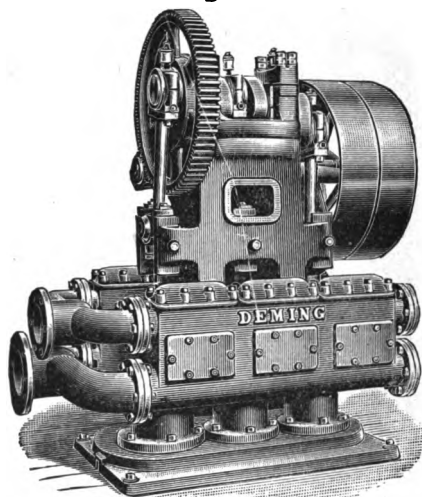
Prices and Special Catalogue on application.

NOTE.—Capacities given are for Maximum Speeds.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

GENERAL SERVICE DOUBLE-ACTING TRIPLEX PUMP

Fig. 51



Above cut shows 7 x 8 and 8½ x 8 sizes. Larger sizes next page.

Fig. 51, illustrated on this and the following page, is for **pressures up to 150 pounds**. The single geared type shown above is ordinarily used on services up to 75 pounds pressure. All sizes embody the following construction: Steel Crank Shafts; Cut Gearing; Pinion Shafts Adjustable toward and from the Crank Shafts; Main Bearings are of large size, lined with best Babbitt; Main Frame of box section of exceptional strength and rigidity; Cross Heads have adjustable Bronze Gibbs and attachments to Piston-rods, permitting disconnecting without turning the Rods; special Cylinder Heads that allow easy removal of the Plungers when necessary; standard Plungers of Iron, reciprocating in removable Bronze Sleeves (packed pistons may be used if specially ordered); Valve Chambers on opposite sides of the Pump Base; yoked end connections with suction and discharge on either end of Pump. Valve areas ample and all Valves easily accessible. Air Chamber is of ample size.

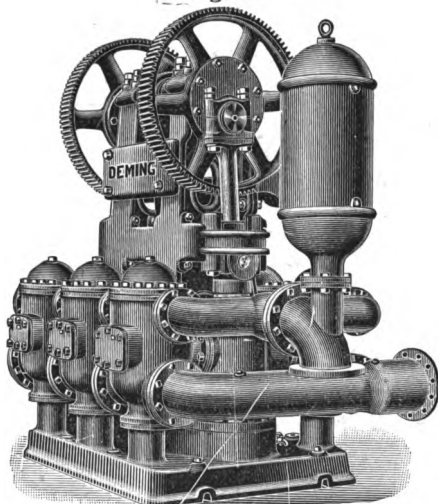
Rawhide Pinion and Special Pulleys furnished on order as required.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

GENERAL SERVICE DOUBLE-ACTING TRIPLEX PUMP

Fig. 51



The cut shown on this page is of a modified form of the Fig. 51, built for heavy pressures and severe duties. This Pump has **Double Main Gearing** and may be furnished with special pulleys, and out-board bearing in case it is required. We also make a modification of this Pump by which, with **Two-Speed Gearing** and **Friction Clutch** on the Pinion Shaft, may be driven at either of two speeds, without changing the speed of the Pinion Shaft so that one speed will, for instance, take care of the demands for water occasioned by ordinary domestic service, and in case of a sudden call for Fire Service, the speed may be instantly increased without shutting down, by simply shifting the Clutch Lever. This arrangement is adaptable for receiving power from a Steam Engine, Gasoline Engine, Water-Wheel or Electric Motor. It is especially valuable for service with a Steam Engine driving an Electric Generator, as it enables the Pump load to be thrown on when the Generator load is light, thus doing the pumping at practically no increase in cost over the operating of the lighting plant, the light load time of the Engine being assisted in this manner by the Pump. This Pump is also in use for Fire Protection, in connection with Sprinkler Systems and may be operated by an Electric Motor, for this service under conditions where Steam Power is not available.

DATA OF FIG. 51

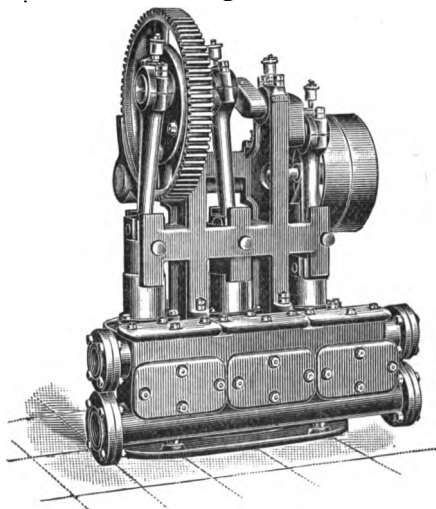
PISTONS		Gallons per Revolution	Revolutions per Minute	Gallons per Minute	PIPING		Gear Ratio	Pulleys	Cipher
Diam.	Stroke				Sucti'n	Discharge			
5½ in.	8 in.	4.86	45 to 60	291	6 in.	5 in.	5 to 1	30 x 8	Obsess
6 "	8 "	5.82	45 " 60	349	6 "	5 "	5 " 1	36 x 8	Obsession
7 "	8 "	7.75	45 " 60	465	8 "	6 "	5 " 1	Special	Obeisance
8 ½ "	8 "	11.54	45 " 60	692	8 "	6 "	5 " 1	"	Obedient
9 "	10 "	16.08	35 " 50	804	10 "	8 "	5 " 1	"	Obtrude
10 "	10 "	19.76	35 " 50	988	10 "	8 "	5 " 1	"	Ocherous

NOTE—Capacities given are for Maximum Speeds. Prices on application.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

LOW SERVICE TRIPLEX PUMP

Fig. 40



Low Service Triplex Pump Fig. 40 is for services not to exceed 50 pounds pressure. It is designed on substantially the same lines as the General Service Triplex, with such modifications as adapt it to the lower pressures.

The Crank Shaft is of steel, the Gears are machine cut, the Plungers are outside guided and outside packed. The Bearings are of ample size; the Valves of large area, and so placed as to be easily accessible.

For Tank service, this type is equally as durable as the General Service Pump. It can be fitted for Brine Circulation, Thick Liquids, Tan Liquor, Soap, Tar, or any special service as required. Please give full data of working conditions in corresponding.

This type can be adapted to any kind of power, belt, gas, gasoline or electric. For Electric Low Service Triplex, Pump, see Fig. 45.

Rules and tables for capacity, Required Power and Speed of Pumps, pages 11 to 16.

DATA OF FIG. 40

PLUNGERS		Gallons per Revolution	Revolutions per Minute	Gallons per Minute	PIPING		Gear Ratio	Pulleys	Cipher
Diameter	Stroke				Suction	Discharge			
5½ in.	8 in.	2 46	60	147	4 in.	3 in.	5 to 1	18x4 in.	Obituary
7 "	8 "	4 00	60	240	5 "	4 "	5 "	24x5 "	Oblation
8 "	10 "	6 52	50	326	6 "	5 "	5 "	28x6 "	Obsequent
9 "	10 "	8 26	50	413	6 "	5 "	5 "	30x8 "	Obtrusive

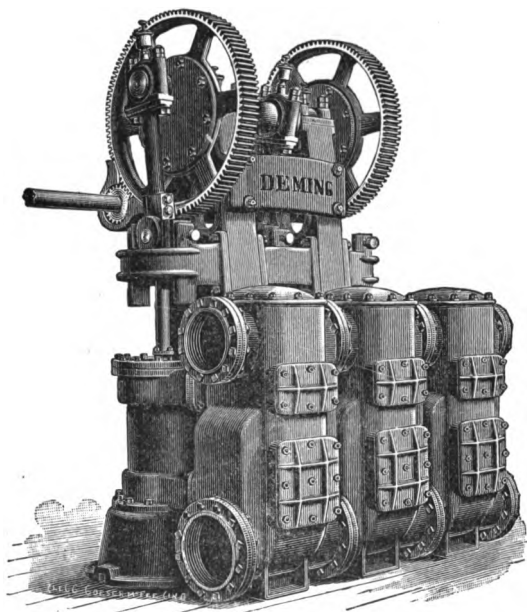
NOTE—Capacities given are for Maximum Speeds.
Prices upon application.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

MEDIUM SERVICE TRIPLEX PUMP

DOUBLE ACTING

Fig. 41



The pump here illustrated is for service against elevations up to 150 feet. It is double-acting, and has fibrous packed pistons, working in removable bronze cylinder liners. The cylinders are separate from each other, and are bolted to a substantial base casting. The valve chambers are on one side of the pump, each chamber containing two sets of suction and discharge valves, all easily accessible. Has steel crank shaft in one piece; double gearing, machine cut; pinion shaft can be adjusted towards and from main gears; steel connecting rods, patent connection of piston rod to cross head.

The standard construction is with pulley of sizes given in table, but connection to electric or other high speed motors can be made either direct or by means of intermediate gearing. These pumps are applicable to many services, and we solicit correspondence on other sizes as well as those listed.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

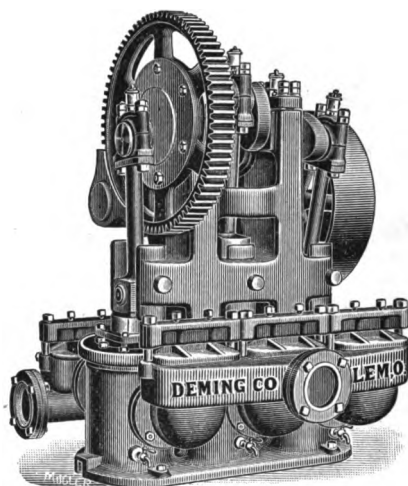
DATA OF FIG. 41

PISTONS		Gallons per Revolution	Rev per Minute	Gallons per Minute	PIPING		Gear Ratio	Pulley	Cipher
Diam.	Stroke				Suction	Discha'g			
10 in.	12 in.	23.85	30 to 40	954	10 in.	8 in.	5 to 1	36 x 10	Oxter
12 "	12 "	34.75	30 " 40	1390	10 "	10 "	5 " 1	36 x 12	Oxidize
12 "	14 "	40.40	30 " 40	1616	12 "	10 "	5 " 1	36 x 12	Oxbird
14 "	14 "	55.25	30 " 40	2210	12 "	10 "	5 " 1	42 x 12	Oxgang

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

TRIPLEX STUFF PUMP

Fig. 53



Triples Stuff Pump, Fig. 53, is especially designed for handling thick liquids and semi-fluids, either hot or cold. As a Pump for **Paper Stock** it has no equal. The Plungers are of Brass, and are Outside Guided, the same as all our Triples. This feature is very valuable, as the acids in stock solutions are very destructive to guiding surfaces that cannot be lubricated. The Glands are Brass Lined. The Valves are of the Ball type, both seats and valves being of Brass. The course of the material through the Pump is as nearly straight as possible; all angles are carefully rounded and no places left where slugs can collect. The Crank Shaft is steel, the Gearing is machine cut, and the Connecting Rods malleable iron, all of our standard construction.

For handling Wood Pulp to great distances this Pump is especially adapted from its exceptional strength. It is very compact, occupying less floor space than most designs.

For handling hot Syrups this pump is unequalled. Please specify the duty in corresponding.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

DATA OF FIG. 53

PLUNGERS		Gallons per Revo- lution	Revo- lutions per Minute	Paper per 24 Hours	PIPING		Gear Ratio	Pulley	Cipher
Diam.	Stroke				Suction	Disch'ge			
4 inch	4 inch	.65	40	3 tons	8 inch	3 inch	5 to 1	18x 4	Obviate
4 "	6 "	.98	40	5 "	8 "	3 "	5 " 1	20x 5	Oculist
5 "	6 "	1.53	40	7 "	8 "	3 "	5 " 1	24x 5	Odious
5½ "	8 "	2.46	35	10 "	4 "	4 "	5 " 1	26x 6	Obliging
7 "	8 "	4.00	35	18 "	5 "	5 "	5 " 1	30x 8	Oblique
8½ "	8 "	5.90	35	26 "	5 "	5 "	5 " 1	36x 8	Oblivion
9 "	10 "	8.26	35	36 "	10 "	10 "	5 " 1	42x10	Octofid
10 "	10 "	10.20	35	45 "	10 "	10 "	5 " 1	42x10	Octopod

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

BELTED TRIPLEX POWER PUMP

WITHOUT GEARING

Fig. 48

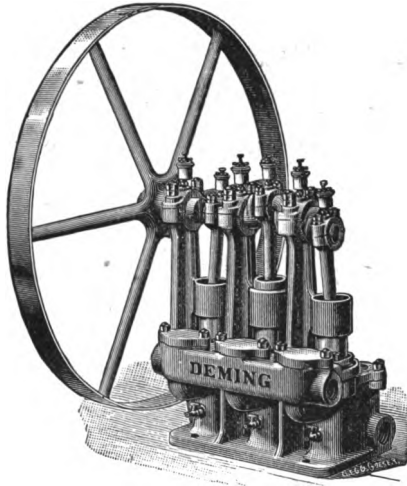


Fig. 48 is designed especially for use in apartment houses, office buildings, etc., where noiselessness of operation is demanded. Being constructed without gearing, it is absolutely quiet in operation, and commends itself for this service. It is fitted with a pulley of large diameter for belting direct to high speed electric or other motor. Has exceptionally large valve areas, permitting of running at high speed; steel crank shaft in one piece, and extended so as to permit of using tight and loose pulleys if desired. **Fig. 48** is very substantially constructed throughout, and is guaranteed for operation against pressures up to 100 pounds.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

DATA OF FIG. 48

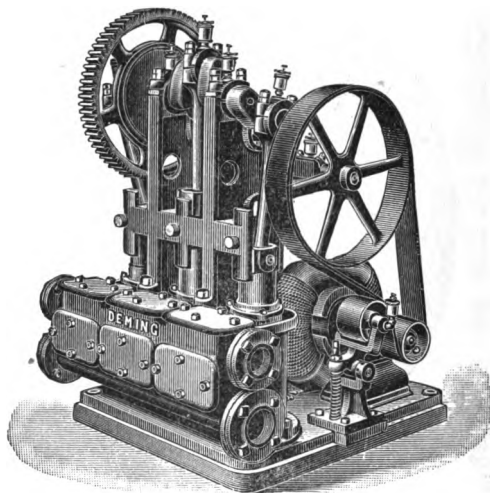
PLUNGERS		Gallons per Revolution	Revolutions per Minute	Gallons per Minute	PIPING		Pulley	Cipher
Diam.	Stroke				Suction	Discha'e		
2 in.	2 in.	.081	120	9.7	2 in.	1 1/4 in.	30 x 3	Oxalite
2 1/2 "	2 "	.127	120	15.2	2 "	1 1/4 "	30 x 3	Oxamide
2 1/2 "	3 "	.19	110	20.9	2 1/2 "	2 "	36 x 3	Oxide
3 "	3 "	.27	110	29.7	2 1/2 "	2 "	42 x 3	Oxidation
3 1/4 "	3 "	.37	110	40.7	2 1/2 "	2 "	48 x 3	Oxidator

Capacities given are for maximum speeds. Prices on application.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

LOW SERVICE TRIPLEX ELECTRIC PUMP

Fig. 45



Low Service Triplex Electric Pump Fig. 45 is for 50 pounds working pressure, and is similar to **Fig. 40** (which see) with such modifications as are necessary to adapt it to electric motor attachment.

For tank service in most situations, for park sprinkling supply, this Pump is as well adapted as **Fig. 55**, and at less first cost. It can be fitted for handling Brine, Thick Liquids, etc.

It has all the completeness of design embodied in **Fig. 55** (which see) and is proportionately as efficient. It is noiseless in operation, and has the best arrangement of parts that we can devise to secure long life in service. It is furnished complete with Intermediate Gearing cut from the solid metal, and with Rawhide or Fibre Motor Pinion and cast iron Sub-base for motor. We can furnish motors if required.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

DATA OF FIG. 45

PLUNGERS		Gallons per Revolution	Revolutions per Minute	Gallons per Minute	PIPING		Gear Ratio	Inter- mediate Gears	Cipher
Diameter	Stroke				Suction	Discharge			
5½ in.	8 in.	2.48	60	147	4 in.	3 in.	5 to 1	Special	Origin
7 "	8 "	4.00	60	240	5 "	4 "	5 " 1	"	Originate
8 "	10 "	6.52	50	326	6 "	5 "	5 " 1	"	Oriole
9 "	10 "	8.26	50	413	6 "	5 "	5 " 1	"	Ornate

NOTE—Capacities given are for Maximum Speed.

Prices upon application Special Catalogue on application.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

BELTED TRIPLEX ELECTRIC HOUSE PUMP

Fig. 60

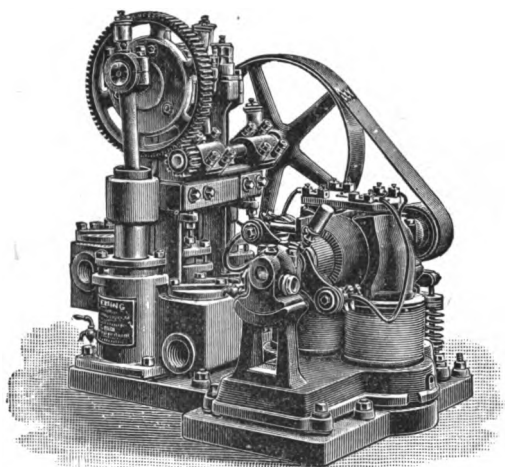


Fig. 60 is for services up to 150 pounds pressure. It is designed with special care for the exacting requirements of house duty. The Pump is substantially the same as Fig. 50 (which please see). It, with the motor, is bolted firmly to a neat cast iron sub-base. The first reduction of speed is made by Pulleys, the belt being kept in constant tension by a Spring Idler. Our arrangement of the Pulleys and Idler gives the belt the best efficiency possible, fully equal to cut gearing. In the smaller sizes operated by motors of very high speed the belted arrangement is preferable for some situations, on account of its extremely quiet running. It is very compact, occupying little room in proportion to its capacity. It can be fitted with automatic controlling devices for compression tank or gravity supply as desired. We furnish the Pump with Sub-base, Idler and Belt complete, and will furnish the motor, if desired, for an additional sum.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

DATA OF FIG. 60

PLUNGERS		CAPACITY		PIPING		SIZE OVER ALL			Cipher
Diameter	Stroke	Gallons per Revolution	Gallons per Hour	Suction	Discharge	Length	Width	Height	
2½ inch	3 inch	.19	750	2 inch	1½ inch	33½ in.	24 in.	34 in.	Opera
3 "	3 "	.27	1000	2 "	1½ "	34 "	26 "	34 "	Operable
3½ "	3 "	.37	1500	2 "	1½ "	35 "	26 "	31 "	Operatic
3½ "	4 "	.50	2000	2½ "	2 "	38 "	27 "	38 "	Operose
4 "	4 "	.65	2500	2½ "	2 "	39 "	28 "	38 "	Opiate

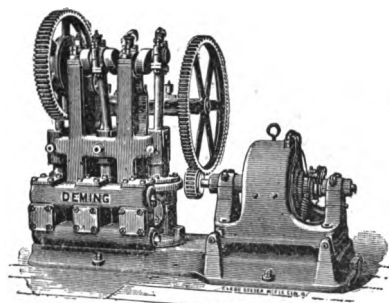
Prices upon application. Special catalogue on application.

NOTE—Capacities given are for Maximum Speeds.

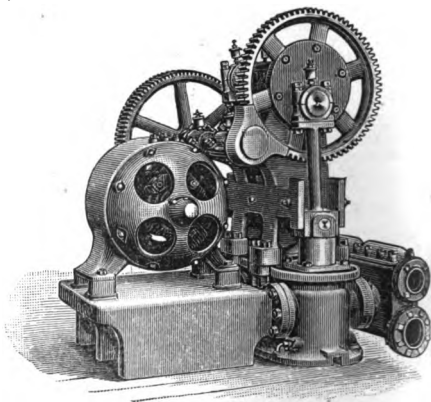
In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

GENERAL SERVICE ELECTRIC TRIPLEX PUMP

Fig. 55



Showing Fig. 55-4 x 6



Showing Fig. 55-7 x 8

This outfit is, as regards the pump, identical in design and construction with our Fig. 50, but is arranged for direct connection to an electric motor. It is furnished complete with a sub-base and intermediate gearing for any make of motor, the motor pinion being regularly made of rawhide. This makes a very suitable pump for Apartment Houses, Hydraulic Elevators, Mines, and any place where installation must be made in a minimum amount of space.

If required we can furnish motors and all the auxiliary controlling apparatus for complete installations. In corresponding, state voltage of generator current, and whether direct or alternating.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

DATA OF FIG. 55

PLUNGERS		CAPACITY		PIPING		Gear Ratio	Intermediate Gears	Cipher
Diam.	Stroke	Gallons per Revolution	Revs. per Minute	Suction	Disch.			
2 in.	2 in.	.081	60	1½ in.	1 in.	5 to 1	Special	Oracular
2½ "	2 "	.127	60	1½ "	1 "	5 " 1		Orally
2½ "	3 "	.19	60	2 "	1½ "	5 " 1		Orate
3 "	3 "	.27	60	2 "	1½ "	5 " 1		Oracle
3½ "	3 "	.37	60	2 "	1½ "	5 " 1		Oration
3½ "	4 "	.50	60	2½ "	2 "	5 " 1		Orange
4 "	4 "	.65	60	2½ "	2 "	5 " 1		Orator
4 "	6 "	.98	60	2½ "	2 "	5 " 1		Obelisk
5 "	6 "	1.53	60	3 "	2½ "	5 " 1		Obesity
5½ "	8 "	2.46	60	4 "	3 "	5 " 1		Obeys
6 "	8 "	2.93	60	4 "	3 "	5 " 1		Obtend
7 "	8 "	4.00	45 to 60	5 "	4 "	5 " 1		Objection
8 "	8 "	5.22	45 " 60	5 "	4 "	5 " 1		Obtensious
8½ "	8 "	5.90	45 " 60	6 "	5 "	5 " 1		Obligate
9 "	10 "	8.26	35 " 50	8 "	6 "	5 " 1		Oleander
10 "	10 "	10.20	35 " 50	8 "	6 "	5 " 1		Oleins

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

GENERAL SERVICE DOUBLE-ACTING TRIPLEX ELECTRIC PUMP

Fig. 61

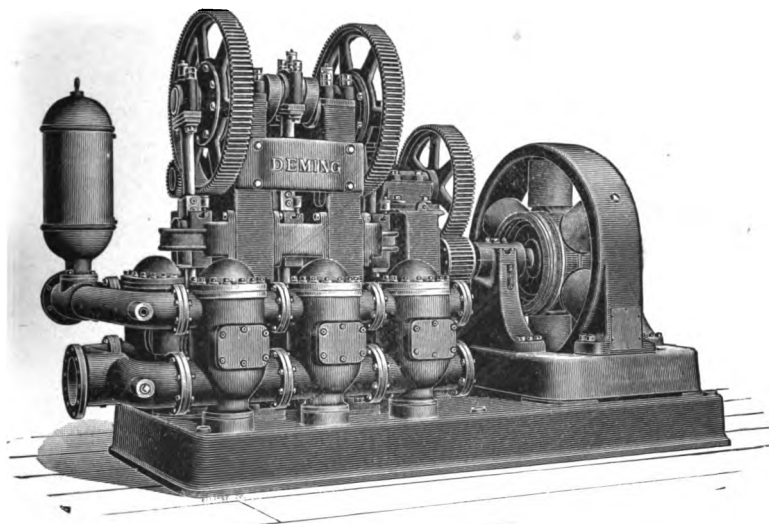


Fig. 61, for 150 pounds pressure, represents our Fig. 51 Pump arranged for direct connection to an electric motor.

It is furnished with intermediate gearing and sub-base extending under both pump and motor, as shown in cut, for any type of motor.

This Pump can also be furnished without sub-base extended for motor if desired.

It is well adapted to Hydraulic Elevator work, and water works supply, especially in cramped places, and gives the highest efficiency of pumps of its class.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

DATA OF FIG. 61

PISTONS		Gallons per Revolution	Revolutions per Minute	Gallons per Minute	PIPING		Gear Ratio	Inter- mediate Gears	Cipher
Diam.	Stroke				Suction	Discharge			
5½ in.	8 in.	4.86	45 to 60	291	6 in.	5 in.	5 to 1	Special	Ortolan
6 "	8 "	5.82	45 " 60	349	6 "	5 "	5 " 1	"	Orthostade
7 "	8 "	7.75	45 " 60	465	8 "	6 "	5 " 1	"	Orthodox
8½ "	8 "	11.54	45 " 60	692	8 "	6 "	5 " 1	"	Orthopy
9 "	10 "	16.08	35 " 50	804	10 "	8 "	5 " 1	"	Orotund
10 "	10 "	19.76	35 " 50	988	10 "	8 "	5 " 1	"	Orthogon

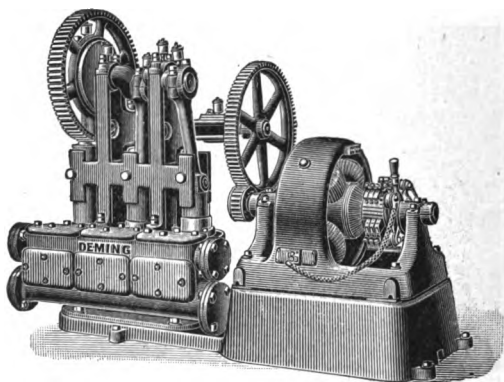
NOTE—Capacities given are for Maximum Speeds. Prices on application.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

LOW SERVICE TRIPLEX ELECTRIC PUMP

DIRECT CONNECTED

Fig. 44



This outfit differs from Fig. 45 only in the manner of connection of the motor to the pump, this being done by means of intermediate gearing instead of belt. The pump is of the same construction as Fig. 40.

The pump and motor are both mounted on one continuous sub-base in such a manner as to give compactness, strength and durability to the combination and makes a very serviceable outfit where the pressure operated against does not exceed 50 pounds.

We furnish pump complete with sub-base, intermediate gear and rawhide motor pinion, and can also furnish motor if desired.

Rules and Tables for Required Power and Speed of Pumps, pages 11 to 16.

DATA OF FIG. 44

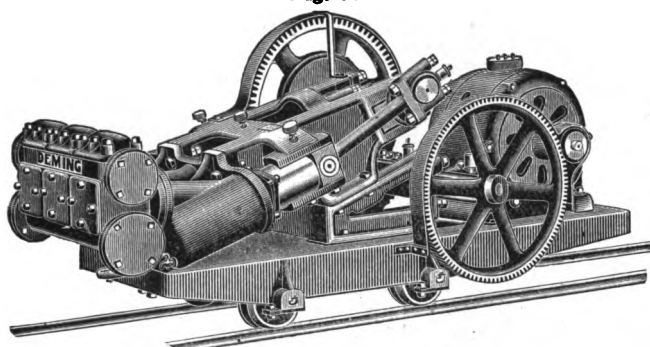
PLUNGERS		Gallons per Revolution	Revolutions per Minute	Gallons per Minute	PIPING		Gear Ratio	Inter- mediate Gears	Cipher
Diam.	Stroke				Suct'n	Disch'ge			
5½ in.	8 in.	2.46	60	147	4 in.	3 in.	5 to 1	Special	Ovibos
7 "	8 "	4.00	60	240	5 "	4 "	5 " 1	"	Ovicular
8 "	10 "	6.52	50	326	6 "	5 "	5 " 1	"	Ovidian
9 "	10 "	8.26	50	413	6 "	5 "	5 " 1	"	Oviform

NOTE—Capacities given are for maximum speed. Prices given on application.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

PORTABLE TRIPLEX ELECTRIC DRIVEN MINE PUMP

Fig. 70



This Pump is for 150 pounds working pressure. It has all the fundamental elements in the design of our Fig. 50 (shown on another page), Cut Gears, Steel Crank Shaft and Brass Bearings. The Plungers are not only outside packed, but outside guided—a feature that in gritty, acid or sulphur waters doubles the life of the Pump. All Gearing is carefully guarded. Suction and Discharge are from either side of the Pump. The Pump is ordinarily fitted with Iron Plungers. Brass Plungers and Brass Lined Glands, or water end all of brass, furnished if desired. Mountings furnished of iron for any gauge of track or height of working. Pump furnished complete with Mounting, and all intermediate Gearing, including Rawhide Motor Pinion for any make of motor. Electric Motors will be furnished extra if desired. Suction Hose and Fittings are not included, but will be furnished extra if required.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

DATA OF FIG. 70

PLUNGERS		Gallons per Revolution	Revoluti's per Minute	Gallons per Minute	PIPING		Gear Ratio	Inter- mediate Gears	Cipher
Diam.	Stroke				Section	Discha'e			
3½ in.	4 in.	.50	60	30	2½ in.	2 in.	5 to 1	Special	Organism
4 " "	4 " "	.65	60	39	2½ " "	2 " "	5 " 1	"	Organist
4 " "	6 " "	.98	60	59	2½ " "	2 " "	5 " 1	"	Ordinal
5 " "	6 " "	1.53	60	91	3 " "	2½ " "	5 " 1	"	Ordinance
5½ " "	8 " "	2.46	60	147	4 " "	3 " "	5 " 1	"	Ordinate
7 " "	8 " "	4.00	50	200	5 " "	4 " "	5 " 1	"	Ordination
8½ " "	8 " "	5.90	50	295	6 " "	5 " "	5 " 1	"	Ordinator

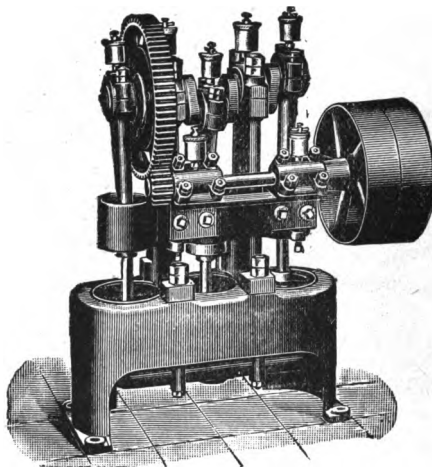
Prices upon application.

NOTE—Capacities given are for Maximum Speeds.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5

TRIPLEX AIR COMPRESSOR

Fig. 74



This Compressor is for pressures up to five atmospheres and is available for use on pneumatic transmission systems, and for furnishing of power for Hoists, etc., for small installations.

The Gears are machine cut, the Crank Shaft is of steel, Bearings are of ample size, Pistons are outside guided, Air Cylinders are finished throughout and water jacketed. The Pistons have sprung ring packings. The Valves are easily accessible. Suction and Discharge Openings fitted for Iron Pipe.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

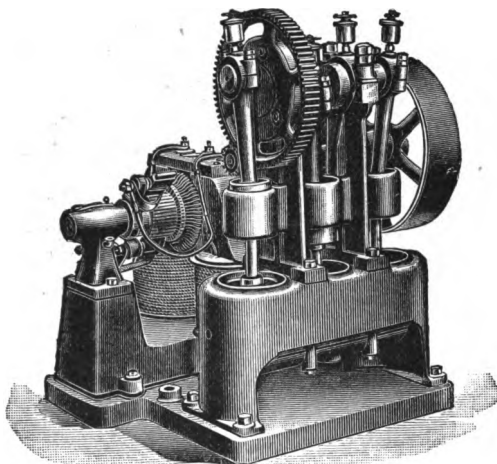
DATA OF FIG. 74

PLUNGERS		CAPACITY		PIPING		Cipher
Diameter	Stroke	Cubic Inches per Revolution	Cubic Feet Free Air Minute	Inlet	Discharge	
5½ inches	3 inch	213¾	10	1 inch	1 inch	Oyster

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

TRIPLEX ELECTRIC AIR COMPRESSOR

Fig. 75



This Compressor is for pressures up to five atmospheres. It is designed to meet the requirements of house service, in the transmission of messages, or signals by the Pneumatic system, or the operation of Automatic Heat Regulating systems.

The Gears are machine cut, the Crank shaft is of steel, Bearings are of ample size, Pistons are outside guided, Air Cylinders are finished throughout and Water Jacketed. The Pistons have sprung ring packings. The Valves are easily accessible. Suction and discharge openings fitted for pipe. This Compressor can be run in club and apartment buildings with perfect freedom from annoying sounds. It is valuable in cramped situations, for operating Drawbridge, Locking and Signal apparatus. Furnished with sub-base, idler and belt. Electric motor furnished at an extra charge if desired.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

DATA OF FIG. 75

PLUNGERS		CAPACITY		PIPING		SIZE OVER ALL WITH MOTOR			Cipher
Diameter	Stroke	Cubic In. per Revolution	Cubic Ft Free Air Minute	Inlet	Discharge	Length	Width	Height	
5½ in.	3 in.	213¾	10	1 in.	1 in.	36 in.	27 in.	34½ in.	Ophite

Prices upon application.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5

TRIPLEX GASOLINE PUMPING ENGINE

Fig. 59

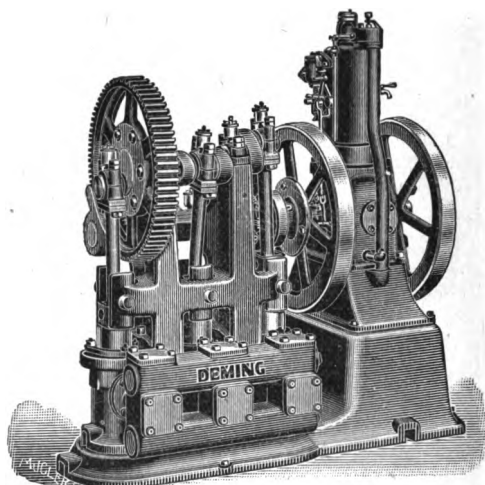


Fig. 59 has been designed to meet a demand for small waterworks and Railway Pumping Plants. The Pump is our Standard Single-acting Triplex type and is driven by a Vertical Gasoline Engine. The Pump and Engine are mounted on a substantial sub-base.

We confidently recommend this machine for Tank pumping, private or town waterworks, and for all kinds of pumping duty within the range of capacities as shown. This apparatus can be operated by the Station Agent or Baggage Man, when used for Railway Work, or by any person of fair intelligence, when used as public or private Water Supply Plant. The operating cost of these plants is much less than that of any other method yet devised. Please give full working conditions in corresponding. We need to know the height of both suction and discharge lift, length of horizontal pipe, its size and condition, and the quantity of water required per hour.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

DATA OF FIG. 59

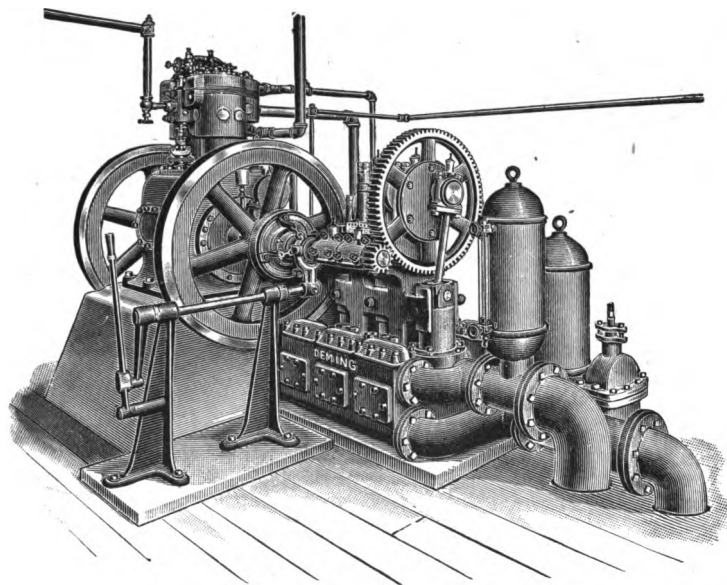
PLUNGERS		Engine H. P. Actual	CAPACITY		Head in Feet	PUMP PIPING		Cipher
Diam.	Stroke		Gallons per Revolution	Gallons per Hour		Suction	Discharge	
4 inch	6 inch	3½	.98	3500	128	2½ inch	2 inch	Obovate
5 "	6 "	3½	1.53	5500	78	3 "	2½ "	Obsidian
5½ "	8 "	6	2.46	8800	81	4 "	3 "	Obvolute
7 "	8 "	6	4.00	14000	50	5 "	4 "	Occult

Prices on application.

NOTE—The Capacities given are for 60 Revolutions per Minute of the Pump. With slower speeds less water may be forced to a higher elevation.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

GAS OR GASOLINE WATER WORKS TRIPLEX PUMPING ENGINE



Within a few years engineers and designers of water works pumping plants have found increasing satisfaction in the use of Gasoline-Driven plants, as is shown by the large number that have been placed in operation. The older method of equipping small water works plants, say up to one or two million gallons daily capacity, was by the use of steam boilers and Duplex Steam Pumps either simple or compound. It is necessary in a large proportion of these plants to operate them but a portion of the time of each 24 hours, necessitating banked fires and practically constant attendance in order to secure fire service promptly. The coal haulage and removal of ashes, and labor to operate the steam plants, are also necessary and costly factors in the maintenance of such plants.

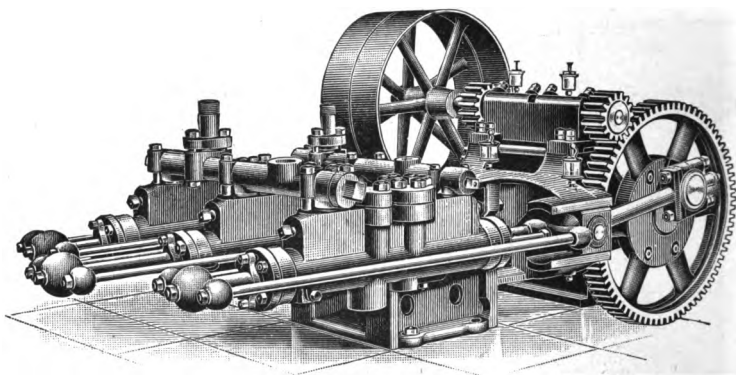
In contrast with this a well designed Gasoline plant can be operated constantly or intermittently and always maintain its maximum efficiency, and working without loss, be always ready for emergency service when required. The fuel, gasoline, is easily stored in underground tanks and is pumped to the engine only as required. The plant requires no attendance except when actually in operation, and even then a skilled operator is not absolutely necessary, many large and successful plants being cared for by men who have had no previous experience with such machinery. The special features secured by this type of pumping apparatus are small fuel cost, light cost for attendance, slight repairs and better service than can be given by any other form of pumping plant. We shall be pleased to make estimates on specifications submitted to us for Power Pumping machinery to be combined with any make of Gas or Gasoline Engine.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

TRIPLEX HYDRAULIC PRESSURE PUMP

Fig. 85



This Pressure Pump is made in both Horizontal and Vertical types to meet the requirements of the service. The capacity of the Pump and the pressure demanded of it, determine its design. These requirements are so varied that we list no standard sizes. Our construction admits of special designs to meet particular requirements and we shall be pleased to make specifications on any machinery of this class. In general, the Power End construction of this Pump is similar to that of our Figs. 50 and 51, Standard Triplex Pumps. Steel Crank Shafts in one piece, Cut Gearing, Removable main bearings and adjustable Pinion Shafts, form our standards of construction. The Water Ends are made special to meet the requirements of any particular service and may be of Cast Iron, Cast Steel or Bronze as required. These Pumps are Outside Packed and Outside Guided, and have ample Valve Area and strong construction throughout. Special attachments for limiting pressure or throwing the plungers out of action, may be furnished when required.

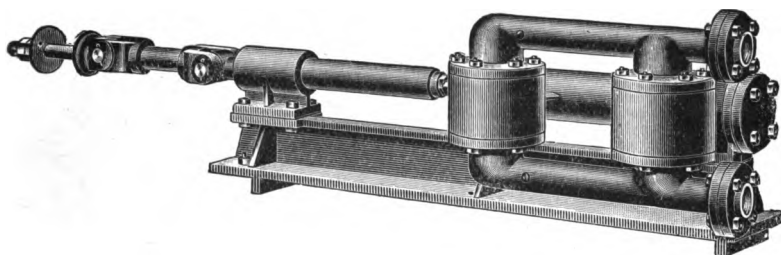
The Pump shown in cut is handling two pressures: one of 1000 lbs. per square inch on one pump end, and another of 5000 lbs. per square inch on the other end. These Pumps are made to suit the requirements for all kinds of Press work, for operating Hydraulic and Testing machinery, and are well adapted for Deep Mine Service, to be driven by motors or water-wheels. We solicit correspondence and would be pleased to submit estimates and designs.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

DOUBLE-ACTING PIPE LINE OIL PUMP

Fig. 684



This Pump was designed by an expert for the purpose of pumping oil from storage tanks into pipe lines. It is a High Pressure Pump, and is tested to 350 pounds per square inch. As shown in cut, it is furnished with companion flanges on suction and discharge, and with connections for attaching Pull Rods to operate the Pump. When regularly made, the Plunger has split iron rings, and the Pump is furnished with bolted Stuffing-box, leather-faced Brass Poppet Valves and Iron Valve Seats. The Connecting Rod between joints is made of 2-inch pipe, and can be lengthened if desired, by inserting a longer piece of pipe. In case it is required for handling water the Piston can be fitted for fibrous packing. We make this Pump in one size only as shown below.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZE AND PRICE

Diam. Cyl.	Stroke	Suction	Discharge	Strokes Per Min.	Cipher	Price Each
3½ in.	16 in.	2 in.	2 in.	25 to 40	Oily	125 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

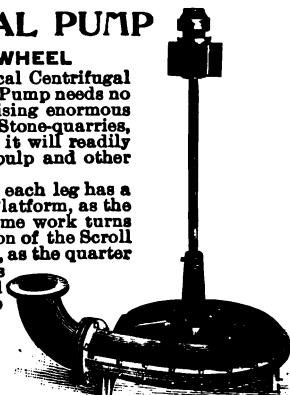
VERTICAL CENTRIFUGAL PUMP

WITH SUBMERGED PISTON WHEEL

Fig. 596, shown by cut, represents our Improved Vertical Centrifugal Pump. Submerged in the liquid and driven as directed, this Pump needs no priming; is always ready for service, and is capable of raising enormous quantities of water in draining Lock-pits, Cofferdams, Stone-quarries, Sowers and Excavations of various kinds. Having no valves, it will readily raise water containing mud, sand, gravel, tan-bark, paper-pulp and other like substances.

DIRECTIONS FOR OPERATING.—Secure the Pump so that each leg has a perfect bearing on the bottom of Tank/Well, Excavation or Platform, as the case may be, and see that the Shaft when attached to the frame work turns easily; secure the Pulley and arrange to drive it in the direction of the Scroll and Discharge. The driving shaft may run in either direction, as the quarter turn or twist in the belt can be made to suit the requirements of the Pump. If necessary a Guide-Pulley may be placed near Pump on Upright Shaft, above or below, as the case may require.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.



SIZES AND PRICES

No.	Economical Capacity, in Gallons per Minute	Horse-Power Required for each Foot Elevation	Diameter and Face of Pulley in Inches	Floor Space Required in Inches	Distance from Bottom of Pump to Center Coupling	Coupling Bored for Connecting Shaft, Inches	Shipping Weight in Pounds	Cipher	Price of Pump, with Elbow, one Pair Couplings, Pulley, and one Bearing
1½	70	.058	5 x 6	17 x 21	2 ft. 9 in.	1	110	Giving	40 00
1¾	90	.075	6 x 6	21 x 29	3 " 0 "	1	165	Gizzard	50 00
2	120	.10	7 x 8	23 x 30	3 " 4 "	1 11-16	198	Glacial	65 00
2½	180	.15	7 x 8	24 x 30	3 " 4 "	1 11-16	220	Glacier	80 00
3	260	.22	7 x 8	25 x 32	3 " 6 "	1 7/8	235	Gladdeen	95 00
4	470	.30	8 x 10	29 x 39	4 " 0 "	1 7/8	380	Gladiator	110 00
5	735	.45	10 x 10	34 x 45	4 " 7 "	1 11-16	605	Gladly	140 00
6	1050	.59	12 x 12	37 x 48	4 " 7 "	1 13-16	740	Gladness	170 00
8	2000	1.00	18 x 12	45 x 56	5 " 5 "	2	1320	Glamour	265 00
10	3000	1.52	20 x 12	51 x 68	5 " 5 "	2	1430	Glance	330 00
12	4200	2.00	24 x 14	63 x 72	6 " 0 "	2 3/8	2640	Glancing	420 00
15	7000	3.50	30 x 16	77 x 102	6 " 6 "	3 1/4	4830	Glaring	600 00
15*	7000	3.50	30 x 15	60 x 71	6 " 6 "	3 1/4	2400	Guildable	480 00
18	10000	4.50	36 x 18	98 x 126	7 " 0 "	3 3/4	5300	Guimbard	950 00
18*	10000	4.50	30 x 16	66 x 78	6 " 6 "	3 1/4	2600	Gunwale	850 00
20	12000	5.40	36 x 20	73 x 92	4 " 6 "	4	4300	Gushing	1255 00

*Refers to low-lift Pumps. Number of Pump is also diameter of discharge opening in inches. Prices of Brass Pumps on application. **Fig. 596** made for use above water when so ordered.

TABLE SHOWING REVOLUTIONS OF FIGS. 596 AND 598 FOR DIFFERENT ELEVATIONS

No.	5 feet	10 feet	15 feet	20 feet	25 feet	30 feet	35 feet	40 feet	50 feet	60 feet	80 feet
1½	428	604	739	854	955	1045	1131	1208	1351	1481	1714
1¾	348	491	601	695	777	850	920	982	1099	1205	1394
2	302	426	522	603	674	737	798	852	953	1045	1210
2½	302	426	522	603	674	737	798	852	953	1045	1210
3	302	426	522	603	674	737	798	852	953	1045	1210
4	285	402	493	569	637	697	754	805	901	987	1143
5	256	362	443	512	572	626	678	724	810	887	1027
6	214	302	368	427	478	523	566	604	675	740	857
8	183	259	317	366	409	448	485	517	579	634	735
10	168	238	291	338	376	411	445	475	532	582	675
12	133	188	230	266	298	326	352	376	421	461	534
15	105	148	181	209	234	256	277	295	331	362	420
*15	151	213	261	301	337	369	399	426	477	522	605
18	105	148	181	209	234	256	277	295	331	362	420
*18	151	213	261	301	337	369	399	426	477	522	605

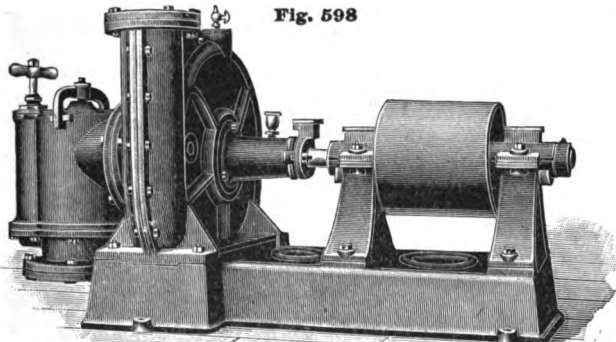
*Refers to low-lift Pumps. Above table gives correct speed of Centrifugal Pumps under usual conditions. If water must be forced through a number of bends and elbows, or a great length of piping, the above speed must be somewhat increased. Use large pipes and easy bends wherever practicable, as they save power.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

HORIZONTAL CENTRIFUGAL PUMP

WITH PRIMER FOR SUCTION PIPE

Fig. 598



The cut on this page represents our Fig. 598, a Horizontal Centrifugal Pump, which is extensively used in Paper Mills, Tanneries, and for irrigating. It has the advantage of being more readily examined and taken apart in case of accident than the Vertical Pump, Fig. 596; although there is no essential difference in their construction and operation. A flange is provided on the Pump (where the Primer is attached) for bolting to the side of a Tank, Flume, or Induction-Pipe when the Primer is not used, and the water is on a level with the Pump. When the water is below the Pump (not more than twenty-five feet) the Primer may be dispensed with if a Foot Valve is used, in which case the Pump and Suction Pipe must be filled before starting. However, it is better in any case to use both Primer and Foot Valve.

The Primer has but one Valve which can be reached by simply taking out the Cap Screws and removing the Plate. To prime the Pump, open the Pet-cock on top of the Shell, and continue working the Plunger until water flows out of the Pet-cock; close it and the Pump is ready for action. The Pump may be emptied of water, to prevent freezing, by withdrawing the screws near the bottom of Primer and Pump-case. The large sizes of Horizontal Centrifugal Pumps have a Power Primer.

These Pumps can be furnished either *right or left handed*; but, unless otherwise ordered, will always be shipped *right handed*, as shown in cut.

Rules and Tables for Capacity, Required Power and Speed of Pumps, pages 11 to 16.

SIZES AND PRICES

No.	Size Pipe Flange on Suction, Inches	Economical Capacity, in Gallons per Minute	Horse Power Required for each Foot, Elevati'n	Diam. and Face of Pulley in Inches	Floor Space required in Inches Without Primer	Shipping Weight, Without Primer Lbs.	PUMP WITHOUT PRIMER		PUMP WITH PRIMER	
							Cipher	Price	Cipher	Price
1 1/2	2	70	.068	6 x 6	17 x 31	175	Gobble	45 00	Glitter	55 00
1 3/4	2	90	.075	7 x 8	21 x 32	280	Godly	60 00	Gloaming	70 00
2	3	120	.10	8 x 8	23 x 37	350	Goggle	75 00	Gloat	90 00
2 1/4	3	180	.15	8 x 8	24 x 38	380	Golden	90 00	Gloated	105 00
3	4	260	.22	8 x 8	25 x 39	415	Gondola	110 00	Globular	130 00
4	5	470	.30	10 x 10	29 x 41	615	Gondolier	130 00	Globule	155 00
5	6	735	.45	12 x 12	34 x 54	940	Goodness	165 00	Gloomy	195 00
6	6	1050	.59	15 x 12	37 x 55	1180	Goody	200 00	Glorify	240 00
8	10	2000	1.00	20 x 12	45 x 64	2085	Gopher	310 00	Glorious	375 00
10	12	3000	1.52	24 x 12	51 x 69	2610	Gordian	395 00	Glossary	470 00
12	15	4200	2.00	30 x 14	63 x 71	3615	Goring	500 00	.....	.....
15	18	7000	3.50	40 x 15	77 x 80	7100	Gorged	850 00	.....	.....
15*	18	7000	3.50	30 x 15	60 x 68	3150	Guillotine	710 00	.....	.....
18	20	10000	4.50	40 x 16	93 x 103	9000	Guiltless	1300 00	.....	.....
18*	20	10000	4.50	30 x 16	66 x 72	4835	Gular	1150 00	.....	.....
20	22	12000	5.40	36 x 20	73 x 83	6800	Gulch	1600 00	.....	.....

* Refers to Low-lift Pump.

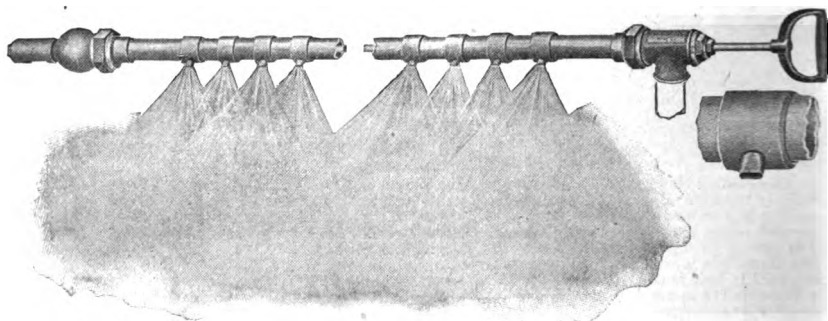
The number of Pump is also diameter of Discharge Opening in inches. Where more than 25 feet of Discharge Pipe is attached to Pump, we recommend using one or two sizes larger than Pump Discharge. For No. 12 and larger sizes we recommend a Foot Valve or Flap Valve and Ejector for priming. Prices on larger size pumps on application. We do not give list of them, as they are usually ordered special to suit different conditions.

Prices of Brass Pumps on application.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

MILLSPAUGH SHOWER PIPE SYSTEM

PATENTED



The above illustration shows the Millspaugh Shower Pipes, partly in detail and also as in operation. Paper makers generally have given little thought to the subject of saving water and power in the supply of fresh water to Paper and Wet Machines, but it is a fact that Centrifugal Pumps as ordinarily installed for this purpose require much power, and belt bills are excessive.

The Millspaugh Shower Pipes are in successful operation in many of the largest mills in the country, saving 70 to 80 per cent. of the water formerly used on showers, and allowing the substitution of positive Pumps having higher efficiency for Centrifugal Pumps, thus saving from 15 to 30 horse power on each Machine. The Wire, Cylinder or Felt is kept cleaner, Felts wear longer, and a better sheet of paper is made. No foreign matter reaches the wire; Filters may be smaller; chemicals for filtration saved, and sewerage is reduced to a minimum.

The water pressure required to successfully operate this System is from 18 to 25 pounds. This may be supplied by Gravity, Steam or Centrifugal Pump, or any other means; but a Triplex Pump of proper size is the most efficient and economical Pump where pumping is required.

If you are driving the Pumps from your Engine, if your Wet Machines are not giving you the output you desire, and your Felts wear out too quickly, if power is valuable, or, in fact, if you wish to save money and annoyance, write us about Shower Pipes and Pumps.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

PATENT SPRAYING NOZZLES

ATTACHMENTS, COUPLINGS, ETC.

Fig. 965



The "Bordeaux" Nozzle is the *simplest and best* combination spraying Nozzle on the market. It throws a solid stream or fan-shaped spray adjustable to any fineness; is readily degorged by turning the cock handle. It will also throw a coarser long distance spray for spraying very large trees; or it may be shut off altogether.

Price, for $\frac{1}{4}$ in. pipe, as per cut..... (Cipher, *Keepsake*) 1 00

"DEMING-VERMOREL" SPRAY NOZZLE, FIG. 963

The "Deming-Vermorel" is an improvement on the Vermorel Nozzle. It is *very simple* in construction and throws a *finer spray* than

any nozzle in use. This nozzle will be furnished with any of our pumps instead of the Bordeaux, when so ordered.

Price, for $\frac{1}{4}$ -in. pipe, as per cut..... (Cipher, *Keefel*) 1 00



Fig. 960



Fig. 966

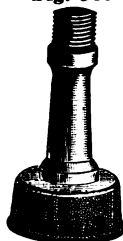


Fig. 971



Fig. 749



Fig. 980

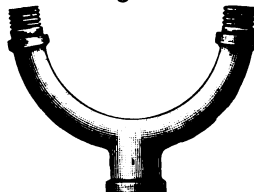


Fig. 960, Acme Spray Nozzle, fits Figs. 966 and 749..... (Cipher, *Kalpie*) .50

Fig. 966, Nozzle Connection, fits regular $\frac{1}{4}$ and $\frac{3}{8}$ -inch male hose couplings. All of our regular spray nozzles fit it. Price..... (Cipher, *Keyhole*) .25

Fig. 749, Hose and Nozzle Coupling, for $\frac{1}{4}$ or $\frac{3}{8}$ -inch hose, as ordered. All our regular nozzles fit it. Price..... (Cipher, *Keynote*) .25

Fig. 971, Pole Connection for Figs. 966 and 749. Price..... (Cipher, *Kruller*) .25

Fig. 980, Double Spraying Attachment, is for the use of two nozzles, in connection with Figs. 966 and 749. Price..... (Cipher, *Kreosote*) .50

Fig. 962



Fig. 364

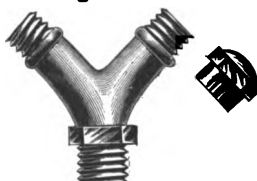


Fig. 949

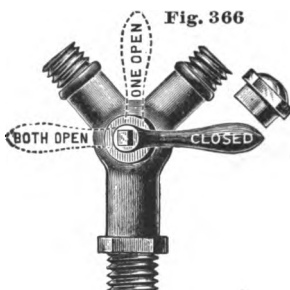


Fig. 962, Brass Undersprayer. Fits all our Nozzle Connections. Price..... (Cipher, *Kyanite*) .25

Fig. 949, Brass Hose Couplings..... $\frac{3}{8}$ -inch (Cipher, *Knoll*) .15; $\frac{1}{2}$ -inch (Cipher, *Knob*) .20

Fig. 364, Plain Discharge Y, for use on Fig. 550 and other orchard sprayers..... (Cipher, *Kraal*) 1 00

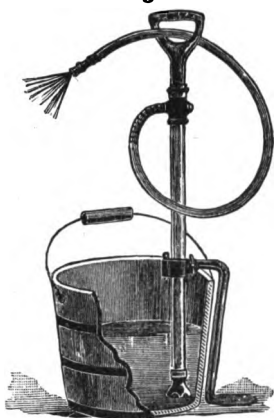
Fig. 366, Discharge Y, with cap and shut-off cock, for use on Figs. 549, 550, 550, 550, 550, 550, etc. Price..... (Cipher, *Kestrel*) 3 00

Three-ply Rubber Hose, $\frac{1}{4}$ -inch, per foot, .25. Rubber Tubing, $\frac{3}{8}$ -inch, per foot..... .20

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

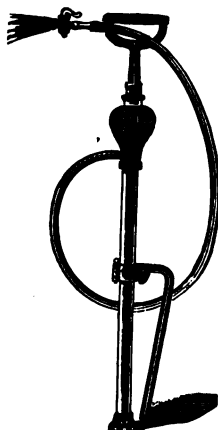
IMPROVED BUCKET SPRAYERS

Fig. 669



The "Prize"

Fig. 659



The "Success"

Fig. 689



The "Perfect Success"

Fig. 669. The "Prize" is the best low-priced bucket Spray Pump on the market. It has all brass working parts, large air chamber capacity in handle, and delivers a strong continuous spray or solid stream from the Acme Nozzle with which it is furnished. The foot-rest is adjustable, and is malleable iron.

Price, without bucket.....(Cipher, *Kafir*) 5 00

Fig. 659. The "Success" Spray Pump has brass air chamber in the stock, and is furnished with the "Bordeaux" Nozzle, which throws a continuous solid stream, fine or coarse spray, or may be shut off entirely. If clogged it may be instantly degorged by turning the handle. The "Success" is what its name indicates, successful and popular.

Price, as shown.....(Cipher, *Koran*) 6 00

Fig. 689. The "Perfect Success" is the same as the "Success," except that the foot-rest has an adjustable bucket and bail clamp, enabling the user to carry the bucket and pump in one hand. **Fig. 689**, like **Figs. 669** and **659**, has the hose wire wound next to pump.

Price, without bucket.....(Cipher, *Keller*) 7 00

Seven-foot Section $\frac{3}{4}$ inch Hose, Couplings and Pole Connection, for use with

Figs. 669, 659 and 689.....(Cipher, *Kedlack*) 2 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED GARDEN SPRAYERS

Fig. 675

Fig. 651



Fig. 675. The "Success" Knapsack Sprayer is not of the ordinary type, but is made of the finest materials, and in the most practical form. It may be used both as a knapsack and garden or greenhouse outfit. In addition to the broad straps and extended lever and handle for use when on the back of the operator, it has a handle for carrying it as a bucket pump, and by removing the lever and attaching the handle shown by dotted lines it is converted into a perfect bucket pump.

The Mechanical Agitator, under Sprayer (A), Drip Cup, Foot Rest and Wrench, make it complete. Having a copper tank and brass pump it will stand the most severe usage.

Price, complete, as shown in cut.....(Cipher, *Kettle*) 15 00

Fig. 651. The "Gardener's Choice" is light and portable, allowing of its use in places where other wheel outfits may not be taken. The pump is nearly the same as Fig. 664, and fitted with four feet of hose and the Bordeaux nozzle. This is an admirable general purpose sprayer.

The wheels and frame are made of iron, and the hard wood tank is securely fastened to the latter.

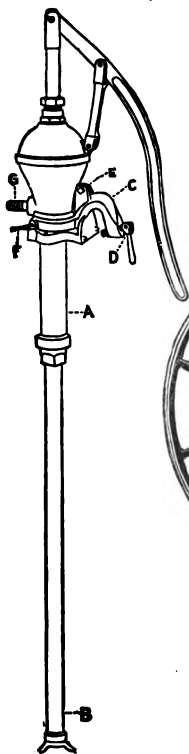
Fig. 651, as illustrated and described.....(Cipher, *Kidder*) 15 00

Seven-foot Section of Hose and Pole Connection for the above Sprayers..... (Cipher, *Kedlack*) 2 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE IMPROVED "GEM" SPRAYING OUTFITS.

**Detail Engraving of
Pump Fig. 664.**



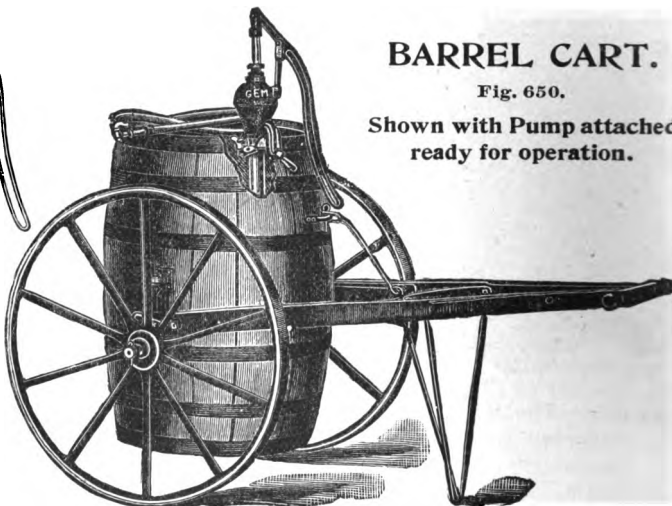
KEY TO DETAIL ENGRAVING OF PUMP.

- | | |
|------------------------------|---|
| A—Brass Cylinder of Pump. | E—Bolt holding Clamp to Pump. |
| B—Suction Pipe and Strainer. | F—Thumb Screw holding Pump in Barrel Clamp. |
| C—Main Part of Barrel Clamp. | G—Discharge connection of Pump. |
| D—Wrench or Clamping Screw. | |

BARREL CART.

Fig. 650.

Shown with Pump attached
ready for operation.



The above cut represents our "Gem" Spray Pump, Fig. 664, attached to Barrel Cart, Fig. 650, both of which are listed below. For convenience, they are shown in the same cut, but are *listed separately*. The outline cut shows Pump enlarged and in detail. The key explains construction.

The "Gem" Pump when used with the Barrel Cart can be set on any part of the chine for either right or left-handed person. The cart can be pushed from place to place, and the barrel can be readily disconnected from or attached to the truck while barrel is either full or empty.

The running gear (of Fig. 650 Barrel Cart) may be ordered without barrel. The trunnions can easily be fastened to any good water-tight barrel by a person with ordinary mechanical ability.

The combination of Barrel Cart (Fig. 650), and "Gem" Pump (Fig. 664), as shown in the above cut, makes a splendid spraying outfit. If desired, a horse can be hitched to this Barrel Cart. See *separate lists* below for Pump and Barrel Cart respectively.

The working parts of pump are all brass. This Pump has 4-inch stroke and 1½-inch cylinder.

PRICE LISTS.

"GEM" PUMP.

Fig. 664, "Gem" Pump, as per cut and description, with 4 feet discharge hose and Bordeaux Nozzle.....	9 00
Seven-foot section of hose and couplings, with pole connection, for "Gem" Pump, extra.....	2 00
	(Cipher, <i>Knotted</i>)
	(Cipher, <i>Kedlack</i>)

BARREL CART.

Fig. 650, Barrel Cart, running gear only.....	12 00
Fig. 650, Barrel Cart, complete, with 50-gallon barrel.....	15 00
	(Cipher, <i>Knotted</i>)
	(Cipher, <i>Knottedless</i>)

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED ORCHARD SPRAYERS

Fig. 550



(Barrel not furnished with Pump.)

Fig. 645



(Showing Outfit A. Barrel not furnished.)

Fig. 550. The "Simplex" Spray Pump is our popular low-priced outfit. It has all brass working parts, and brass-lined cylinder, $2\frac{1}{4}$ inches in diameter, 5-inch stroke. The plunger is brass, with indestructible packing, which requires no attention whatever. This pump has mechanical agitator. The discharge is fitted with plain Double Discharge Y (Fig. 364) and a cap, but *at extra price given below* will be fitted with Fig. 366 three-way cock.

Fig. 645. The "Century" is our best Barrel Spray Pump. The cylinder is brass, $2\frac{1}{2}$ inches in diameter, 6-inch stroke. The valves are bronze balls; the plunger is brass and has two indestructible packing crimps; air chamber is large and mechanical agitator complete. The strainer is also a feature of this pump, as it cannot clog. The discharge is fitted with Fig. 364 Double Discharge Y, unless otherwise ordered.

PRICE LISTS

Description.	Fig. 550		Fig. 645	
	Cipher	Price	Cipher	Price
Pump only, no hose.....	Kidney	9 00	Kinate	13 50
Outfit A, Pump with one $12\frac{1}{4}$ -ft. section $\frac{1}{2}$ -in. hose, pole connection and nozzle...	Kilted	13 50	Kernish	18 00
Outfit B, two $12\frac{1}{4}$ -ft. sections $\frac{1}{2}$ -in. hose, pole connections and nozzles.....	Kimbo	18 00	Knightly	22 50

Figs. 550 and 645 and Outfits, with Fig. 366 (Cipher, *Kestrel*), \$2.00, extra list.

Section of $\frac{1}{2}$ -in. hose, $12\frac{1}{4}$ feet long, with couplings, pole connection and Bordeaux Nozzle complete.(Cipher, *Knaveish*) 4 50

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

IMPROVED KEROSENE SPRAYERS

Fig. 649.

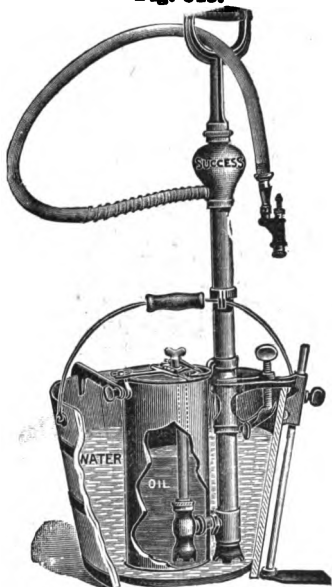


Fig. 676.

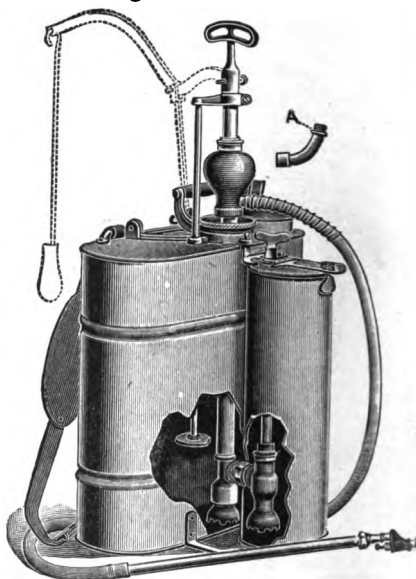


Fig. 649. The "Success" Kerosene Sprayer consists of our Perfect Success bucket spray pump, **Fig. 689**, with a kerosene attachment. The oil tank may be readily removed, and a cap, which we furnish, placed on the oil inlet. The pump can then be used the same as our other Success pumps, **Figs. 659 and 689**.

The operation of the kerosene attachment is the same as in our other Kerosene Sprayers, **Figs 676 and 529**.

Price, complete, as in cut.....(Cipher, *Keeling*) 10 00

Fig. 676. The "Weed" Kerosene Sprayer is **Fig. 675** with kerosene attachment essentially like that on **Fig. 649**, and in the same way it may be removed when Bordeaux Mixture or other solutions than kerosene and water are to be applied. The tanks are copper, and the pump entirely brass, so that it is not affected by the action of chemicals.

The mechanical mixture of kerosene and water, for the destruction of insect pests, has been proven a success, and the appliances we illustrate are the only accurate and durable ones manufactured for its application. The percentages of oil are governed by the indicator, and when this is properly set, and instructions followed, the results are satisfactory. Complete directions are furnished with every sprayer.

Price, complete, as illustrated.....(Cipher, *Kobalt*) 20 00

Seven-foot Section of $\frac{3}{8}$ -inch Hose, with Pole Connection, for the above Sprayers.....(Cipher, *Kedlack*) 2 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE PEERLESS BARREL SPRAYERS

Fig. 529



Fig. 549



Barrel not furnished with
Sprayers as listed.

Fig. 529. The "Peerless" Kerosene Sprayer is designed for use in orchards. The mixture of kerosene and water is effected in the same manner as with Figs. 649 and 676. The Kerosene Tank is copper, and with its suction pipe may be removed and a pipe and agitator (which go with the outfit), like that on **Fig. 549**, attached, making it identical with **Fig. 549**. See list of Kerosene Tank and Attachments below. **Fig. 549** can be ordered first, and Kerosene Tank and Attachments afterward.

Fig. 549. The "Peerless" Sprayer, like **Fig. 529**, has all brass working parts, large air chamber, **Fig. 364** Y Discharge, and mechanical agitator. The cylinder is 2 inches in diameter and has $4\frac{1}{2}$ -inch stroke. The plunger is all brass, and is packed with our indestructible fabric packing.

PRICE LISTS

Description	Fig. 529		Fig. 549	
	Cipher	Price	Cipher	Price
Pump, as illustrated, less hose.....	Kingbird	27 00	Killdeer	12 00
Outfit A, pump with one 12½-ft. section ½-in. hose, pole holder and nozzle.....	Kingdom	31 50	Killbuck	16 50
Outfit B, pump with two 12½ ft. sections of hose, pole holder and nozzles.....	Kingfisher	36 00	Kerolite	21 00

Kerosene Tank and Attachments for connecting to **Fig. 549** making it same as **Fig. 529**.....(Cipher, *Kemelin*) 15 00

Figs. 529 and 549 and outfits with **Fig. 366** 3-Way Stop Cock Discharge (Cipher, *Kestrel*)
\$2.00, extra list.

Section of ½-inch hose 12½ feet long, with couplings, pole holder and Bordeaux Nozzle,
complete.....(Cipher, *Knavish*) 4 50

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE "PLANET" DOUBLE-ACTING SPRAY PUMP

WITH DOUBLE-DISCHARGE Y CONNECTION.

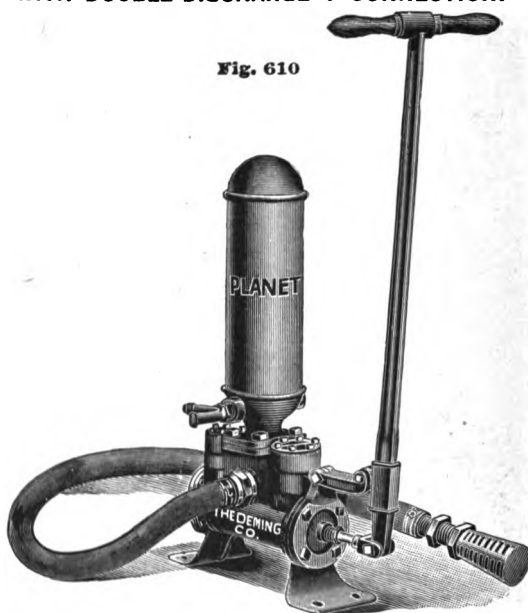


Fig. 610

The Planet Double-Acting Spray Pump, represented by the above cut, is the most powerful pump of the kind that we make, except Fig. 614. It has two discharge connections, adapting it for spraying in two places at once. The sections of hose, with double nozzle and pole connection, enable the operators to reach trees on either side of the row. Two of our **Fig. 864** Y connections can be placed on this pump, which adapts it for using either two, three, or four sections of hose. As furnished, a plug is in the discharge opening out of view. *The extra Fig. 864 can be ordered any time.* The **Fig. 864** has two discharge connections, one of which has a tight cap. The pump has a large air chamber, making it easy of operation. The cylinder is lined with brass tubing, the pump is supplied with 4 feet of wire-lined suction hose and large strainer. The discharge connections will fit either $\frac{1}{2}$ -inch or $\frac{3}{4}$ -inch hose couplings. The Planet Pump has indestructible fabric plunger packing, and removable valves

PRICE LIST

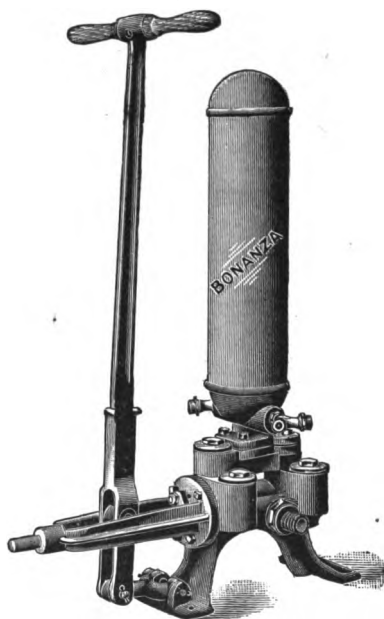
Planet Pump only , as illustrated, with 2 $\frac{1}{4}$ -inch cylinder, and 4 feet of $\frac{1}{4}$ -inch suction hose, with strainer, with 1 Fig. 864 (Cipher, <i>Kennel</i>)	24 00
Planet Pump only , as above, but with 2 Fig. 864 . . . (Cipher, <i>Kenile</i>)	25 00
Planet Pump only , as above, but with 1 Fig. 866 and 1 Plug (Cipher, <i>Kedge</i>)	26 00
Planet Pump only , as above, but with 2 Fig. 866 . . . (Cipher, <i>Kecky</i>)	29 00
12 $\frac{1}{4}$-Foot Section $\frac{1}{4}$-inch Hose with Couplings, Pole Holder and Bordeaux Nozzle (Cipher, <i>Knavish</i>)	4 50
25-Foot Section of $\frac{1}{2}$-inch Standard Hose, Couplings and pole connections with double spraying attachments and two Bordeaux Nozzles, complete, each (Cipher, <i>Keslop</i>)	9 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

"BONANZA" DOUBLE-ACTING SPRAY PUMP

WITH BRONZE BALL VALVES AND GUIDED PISTON ROD.

Fig. 614.



The Bonanza Spray Pump in design and construction is as near perfection as it can be made. Like the Planet, it is adapted for large orchards.

The salient features of this Pump are: a very large Air Chamber (26 times plunger displacement); brass-lined cylinder; bronze ball valves and seats; guided brass Piston Rod; indestructible fabric plunger cup packing; also accessibility of valves and other parts. These points of superiority collectively make the Bonanza the best orchard Spray Pump of large capacity ever offered.

The "Pump Only," as illustrated, is fitted with two (Fig. 364) double discharge plain Y hose connections (or three-way Fig. 366, as ordered), each connection having a tight cap on one branch, so that either two, three or four sections of discharge hose can be used at once. It also has 4 feet of $1\frac{1}{4}$ -inch wire-lined suction hose and a suction strainer with nipple and lock nut for attaching to a barrel or tank. Customers can thus select their own hose and attachments for the Discharge; or we will furnish same as listed below. Size of cylinder $2\frac{1}{2}$ inch, stroke 5 inch.

PRICE LIST

Bonanza "Pump Only," as described above.....	(Cipher, Kabook)	32 50
Bonanza "Pump Only," as described, with two Fig. 366 instead of two plain Y discharge connections.....	(Cipher, Keeler)	36 50
Section of $\frac{1}{2}$ -inch hose $12\frac{1}{2}$ feet long, with couplings, pole holder and nozzle complete.....	(Cipher, Knavish)	4 50
Section of $\frac{1}{2}$ -inch hose 25 feet long, with couplings, pole holder, also Fig. 980 Y and two nozzles.....	(Cipher, Keslop)	9 00

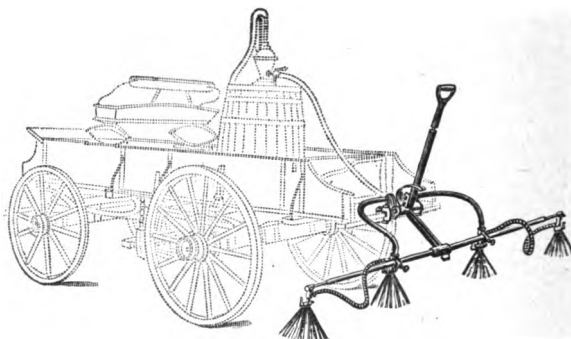
In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE DEMING FIELD SPRAYER

FOR SPRAYING POTATO PLANTS

STRAWBERRY AND COTTON PLANTS, SMALL NURSERY STOCK, ETC.

Fig. 653



Attachable to any wagon and barrel sprayer.

The potato spraying appliance shown in the accompanying cut is intended to be attached to any barrel sprayer, such as **Figs. 550, 549, 645**, etc. The outfit may be placed on the end of a wagon or truck and a section of hose connected with the spray pump. The four **Bordeaux Nozzles** are adjustable for any width of rows, from 28 to 44 inches, and may be raised or lowered as desired. The nozzles can be set at desired angle for forward or backward spraying. The nozzle holders may be brought together so that the wagon can pass through any gate.

With this outfit one person can do all the work of spraying, for all that is necessary, after the preliminary work of filling the spray barrel, etc., is to drive and pump. With this appliance any barrel sprayer having discharge hose connections can be used. *Articles in dotted lines not furnished.*

PRICE LIST

Fig. 653 , complete, as shown in cut, with four Bordeaux Nozzles and two sections of $\frac{3}{8}$ -inch wire-wrapped hose, and two sections of $\frac{1}{2}$ -inch hose, with couplings for connecting to discharge hose of any barrel pump.....	(Cipher, <i>Katydid</i>) 15 00
Section of $\frac{1}{2}$ -inch hose, with couplings, for attaching Field Sprayer to any orchard spray pump.....	(Cipher, <i>Kantry</i>) 2 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

PLANET HORSE POWER SPRAYER

FOR SPRAYING FIELD CROPS

Fig. 647

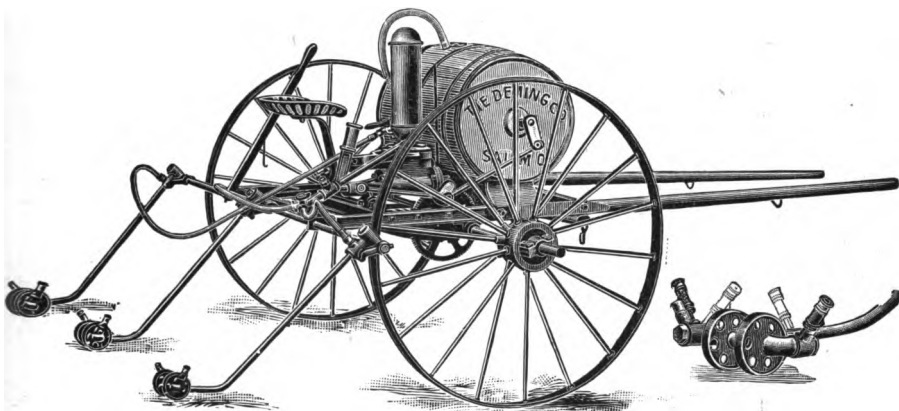


Fig. 647 is made of the best material by competent mechanics. The steel channel frame is most rigid. The wheels are large and draft light. The wheels and nozzles are simply and easily adjusted to rows from two to four feet in width. Each wheel has a clutch coupling to axle, allowing one wheel to stand while the other moves forward in turning.

The pump, which has brass working parts, is our Fig. 610 (described elsewhere), with special guided piston and self-contained crank shaft and pinion, with clutch to throw same in and out of gear, and is driven by heavy gear from the axle. The agitator is driven from the same gearing. The strainer allows nothing to pass that will clog the nozzles. *The pump may also be operated by hand for use in orchards, by throwing clutch out of gear.*

Three sets of arms and nozzles are regularly furnished for potatoes and cotton, and will generally be found ample; but five will be furnished at extra cost as in price list below.

For vineyard use two sets of special arms are furnished at the same price. When so furnished the axle is shorter. The illustration shows our method of arranging the nozzles for spraying the under side of plants.

PRICE LIST

- Fig. 847** complete, as described, with three sets of (6 nozzles for 3 rows) nozzles (Cipher, *Knaggy*) \$75.00
Fig. 647 complete with five sets (10 nozzles for 5 rows) of nozzles (Cipher, *Knappish*) \$5.00
Fig. 647 complete, for vineyard (Cipher, *Knappish*) 75.00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE "SKYSCRAPER" ADJUSTABLE SPRAYING TOWER

Fig. 720



The cut on this page represents a novel and very useful apparatus for spraying tall shade trees in parks and on boulevards. By means of a crank and worm gear connected to a copper cable the telescoping sections may be elevated or lowered as desired, and will remain without locking at any required height. It may be used to spray trees from 60 to 70 feet in height, without the use of ladders, and without danger to the operator. The pipe is swiveled on a universal joint, and the nozzles are also adjustable to any angle, so that no difficulty is encountered in spraying all parts of a tree.

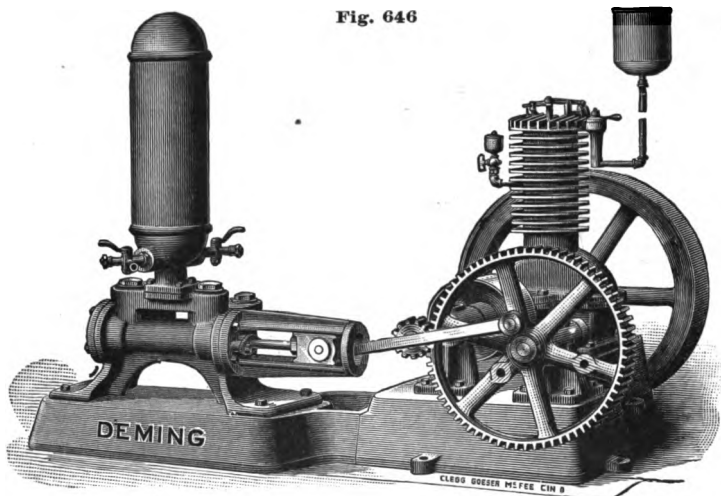
The tower readily swings down to the ground, allowing a change of nozzles, and permitting it to pass under obstructions. It has the necessary scantling and frame work to attach to a wagon or water tank, and is shipped complete as described, with two nozzles.

The gasoline engine outfit, shown on another page, is the most practical one for use in connection with this spraying tower, as the work is very hard to do with a hand pump; but if a hand pump is preferred, Fig. 614, 610, or 645 will be found acceptable.

Price complete, with 50 feet of $\frac{3}{8}$ -inch hose, couplings, double nozzle Y and two Bordeaux nozzles (Cipher, *Kavass*) \$75.00

GASOLINE ENGINE SPRAYING MACHINE

Fig. 646



A self-contained, light, simple, and practical gasoline engine spraying outfit has been demanded for years, but such outfit has not been made because of the special and severe duty required and the difficulty of building a small reliable gasoline engine to sell at a reasonable price. We offer, after years of investigation, just the outfit required.

The engine does not require troublesome piping and tanks for water jacket, as the cylinder is air cooled. The electric igniter is strong and the current is furnished by improved dry batteries. The lubrication is simple. A pulley is provided so that the engine can be used for sawing wood, churning, feed grinding, etc. The spray pump is our Fig. 614, described on another page, with the necessary attachments for connecting the engine. A safety valve and pressure gauge are furnished. Connection may be made to any style of agitator the customer may provide.

The complete sprayer is readily mounted on wagon bed or tank wagon and is equally valuable for the farmer, orchardist, or park superintendent. It is furnished as above described with gasoline can of convenient type, dry batteries securely packed in a strong box, a can of lubricating oil, and a starting crank. An hour's time is ample to mount the outfit and begin spraying. Twenty-five cents will cover the expense of operation for ten hours.

PRICE LIST

Fig. 646 complete with 4 feet of suction hose and strainer, and with two Fig. 366 double discharge Y's, safety valve, and gauge (Cipher, Kipling) —	*
Twenty-five foot section of $\frac{1}{4}$ -inch hose, couplings, and pole connections, with double spraying attachment and two Bordeaux nozzles, complete, each	(Cipher, Keslop) 9.00
Twenty-five foot section of $\frac{3}{4}$ -inch hose, with couplings, two nozzles, etc., as above	(Cipher, Kevel) 7.50

* Prices on this Spraying Machine furnished on application.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE "CENTURY" PAINTING AND WHITEWASHING OUTFIT

Fig. 644



This outfit will be found a most convenient and profitable addition to the equipment of factories, warehouses, abattoirs, etc. Two men with this outfit can do the work of a dozen men with brushes, and in many situations much better work can be done, as the material is forced into the deepest recesses on rough walls.

A treatment with whitewash or cold water paint, applied with this outfit saves many times its cost in bills for lighting, and permits better work in a machine shop or foundry, because of the greater diffusion of light.

The pump used is Fig. 645, described on another page. This outfit has mechanical agitator, stop cock on discharge, and one 25-ft. section of $\frac{3}{8}$ -inch hose, with pole connection and *two nozzles* — an Acme and a Bordeaux.

PRICE LIST

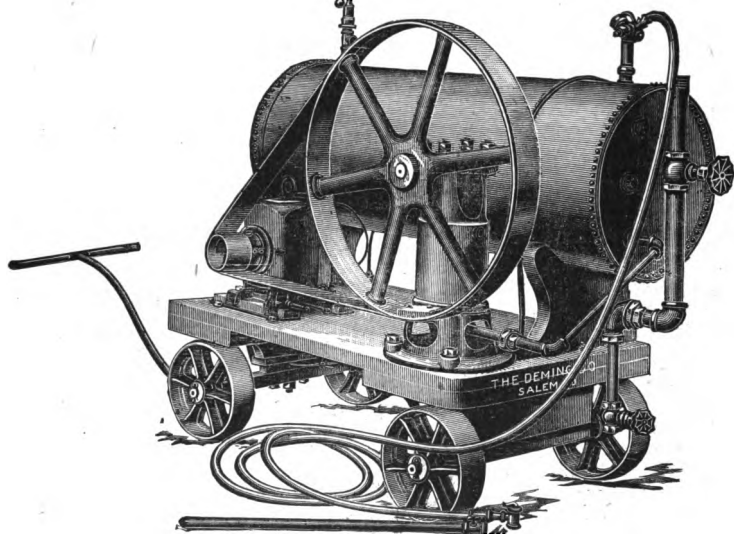
Fig. 644, as shown and described (Cipher, *Kaiser*) \$30.00
Outfit A same as above, with two 25-ft. sections of $\frac{3}{8}$ -inch hose each with
 two nozzles, etc. (Cipher, *Kanaka*) 36.50

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE DEMING PNEUMATIC PAINTING MACHINE

FOR ELECTRIC OR GASOLINE MOTOR

Figs. 682 and 683



(The engraving represents Fig. 682.)

The Electric Driven Pneumatic Painting Machine, Fig. 682, illustrated above, we have furnished to some of the largest manufacturers. It consists of a convenient and heavy truck on which is mounted an air-tight steel tank of 50 gallons capacity, connected to our Fig. 680 Air Compressor with a small electric motor. The motor is operated by current taken from ordinary incandescent electric light connections about the mill or factory. The paint or white-wash is thoroughly agitated by the air in entering the tank at the bottom. The tank is filled by a funnel connected to pipe on end of the same, and is cleaned by opening valve at bottom. A pressure gauge and safety valve are provided. No liquid enters the compressor, as it is discharged directly through hose and nozzles by the air pressure, which remains constant, as regulated by the safety valve.

Where electric current is not available, we furnish the outfit (designated as Fig. 683) with a small gasoline engine, with air-cooled cylinder, as listed below. The outfits are furnished without hose and nozzles, which are listed separately.

PRICE LIST

*Fig. 682, with Electric Motor, as per cut and description (Cipher, *Kraken*) 225 00
 Fig. 683, with Gasoline Engine as described.....(Cipher, *Krama*) 250 00
 50-foot section of $\frac{3}{8}$ -inch hose, with couplings, pole connections and two
 nozzles (used separately), a Bordeaux and Acme.....(Cipher, *Krang*) 10 50

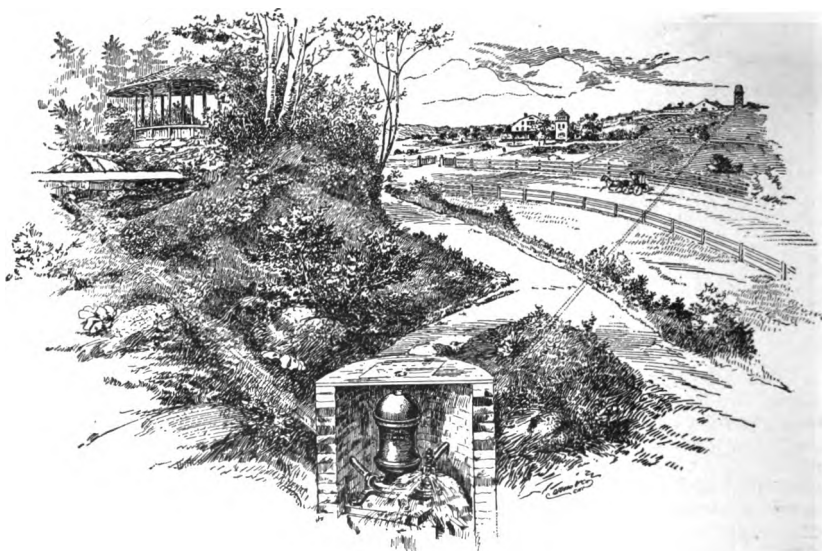
*In ordering Fig. 682 state current and voltage.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

DIRECTIONS AND SPECIFICATIONS FOR LOCATING AND ORDERING THE DEMING HYDRAULIC RAM

It is impossible in a general catalogue like this to give exact specifications of the various conditions under which a Hydraulic Ram will operate successfully. The illustration below will give a general idea of the utility of this wonderful machine in supplying water to a suburban or country residence.

The Storage Tank may be located where desired. It should have adequate ventilation and be arranged with Overflow Pipe.



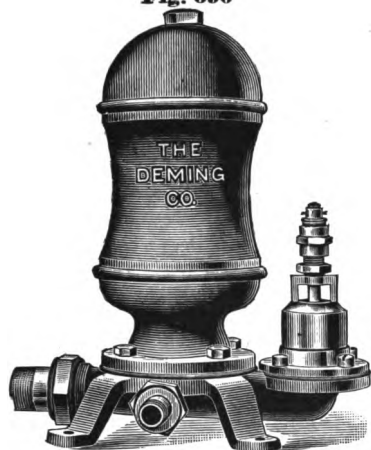
THE HYDRAULIC RAM IN OPERATION

In locating the Hydraulic Ram, it should be observed that the length of the Drive or Supply Pipe ought not to be less than three-fourths of the height to which the water is to be raised or five times the height of supply; it may, however, be longer. The Hydraulic Ram is most efficient when the volume of the Air Chamber is equal to the volume of the Discharge Pipe. The length of Discharge Pipe is best not to be greater than twenty times the height to which water is discharged or elevated by the Ram. All turns or angles in the Discharge Pipe should be avoided, and the Ram should be set level so the Impetus Valve is vertical. A drain should be arranged to carry off the waste water, and the Ram covered to protect from frost.

In ordering a Hydraulic Ram, care should be exercised in giving us as near as possible the amount of water per minute that can be supplied to the Ram; the amount of water required every twenty-four hours; the number of feet fall (vertically) that can be obtained from the reservoir to the Ram, and the length of Drive Pipe; also the vertical and horizontal distance the water must be discharged (the height water is elevated above the Ram) and length of the Discharge Pipe.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

Fig. 690



“DEMING” HYDRAULIC RAM

The annexed cut represents the Deming Hydraulic Ram. In locating, a pit should be dug in which the Hydraulic Ram may be placed, in order that it may not be affected by the frost. From the pit a drain should be arranged to carry off the waste water.

A Reservoir should be constructed giving the greatest fall or head of water through the Drive Pipe to the Ram.

Our Rams are made of Iron and Bronze. The Valve Stem and Case of the Impetus or Waste Valve are always made of Bronze, which is the best material for the purpose.

For further particulars concerning the Hydraulic Ram, we refer to the description and directions on the preceding page.

SIZES AND PRICES

No.	Quantity of water supplied to the Ram	Length the Drive Pipe should be	CALIBRE OF PIPE		Cipher	Price
			Drive	Discharge		
2	1½ to 2 gals. per minute	12 to 50 feet	¾ inch	¾ inch	Hautboy	9 00
3	1½ " 4 " " "	12 " 50 "	1 " ½ "	1 " ½ "	Havoc	11 00
4	3 " 7 " " "	12 " 50 "	1½ " ¾ "	1½ " ¾ "	Haversack	14 00
5	6 " 14 " " "	25 " 100 "	2 " 1 " "	2 " 1 " "	Hawser	22 00
6	12 " 25 " " "	25 " 100 "	2½ " 1½ "	2½ " 1½ "	Hazard	40 00
7	20 " 60 " " "	25 " 125 "	4 " 2 " "	4 " 2 " "	Hazardous	75 00
8	30 " 120 " " "	25 " 150 "	6 " 2½ "	6 " 2½ "	Headlong	125 00

TABLE SHOWING EFFICIENCY OF THE HYDRAULIC RAM

Minimum Fall of water, in feet, under which Ram will effectively elevate water to the height given below	2	2	2	3	4	5	6	7	8	10	12
Height in feet the water may be elevated . .	4	6	8	15	24	35	48	68	80	100	120
Length of Drive Pipe in feet	12	12	12	15	20	30	40	50	60	75	95
Number of times the height or elevation of discharge is greater than the fall	2	3	4	5	6	7	8	9	10	10	10
Proportion of water elevated or discharged by the Ram	½	⅓	¼	⅓	⅓	⅓	⅓	⅓	⅓	⅓	⅓
Proportion of water wasted at the Impetus Valve by the Ram	½	⅓	¼	⅓	⅓	⅓	⅓	⅓	⅓	⅓	⅓
Per cent. of Useful Effect of Power expended .	80	78	75	72	68	62	57	58	48	48	38

N. B.—The length of the Drive or Supply Pipe should not be less than ¾ of the height to which the water is to be raised, or 5 times the height of supply; it may, however, be longer. The Hydraulic Ram is most efficient when the volume of the Air Chamber is equal to the volume of the Discharge Pipe. The larger size Rams, when an abundance of water is supplied, are adapted for elevating to the greatest heights and longest distances. The Discharge Pipe should not be longer than 10 times the height of discharge.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE HYDRAERAM

IS A

MODERN AUTOMATIC PUMP OR HYDRAULIC RAM

WHICH FOR

ADJUSTABILITY,

DETACHABILITY,

DURABILITY,

EFFICIENCY,

SIMPLICITY,

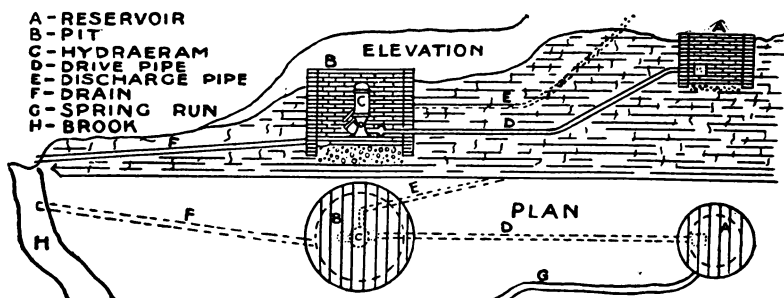
SYMMETRY

of design, and general ability for accomplishing its purpose, surpasses all other machines of the kind.

DIRECTIONS FOR SETTING AND STARTING.

The Drive or Supply Pipe is best to descend from the supply reservoir and gradually assume a level position as it approaches the machine, and it should enter the reservoir far enough above the bottom for a continuous flow of clear water. A strainer over the end of pipe in the reservoir is an advantage.

The Discharge or Delivery Pipe is best to have a continual ascent from the machine toward the point of delivery. Below is an ideal *plan and profile diagram*, illustrating the relative position of Reservoir, Hydraeram, Pit, Drive Pipe, Discharge Pipe, etc.



In Locating the Hydraeram or Automatic Pump, a pit should be dug in which to place the machine, so that it will not be affected by the frost. A drain should be arranged to carry off the waste water, and a reservoir or dam constructed to give the greatest fall or head of water. The length of the drive or supply pipe ought not to be much less than the height to which the water is to be raised; it may, however, be longer. **All Short Turns or Angles** in the drive and discharge pipes should be avoided, and the Hydraeram should be set level. The pit is better to be mason work with cemented bottom. The machine may be screwed to a plank or timbers set in the bottom of the pit; or the foundation may be of stone or cement, leveled up, and with base bolts set in. **The Adjustable Weight** on the rocker-arm should be set down toward the impetus valve where the ratio of fall to elevation is great, and for a less ratio of fall to elevation this weight should be set closer to the fulcrum or hinge. For a small amount of fall, or low head of water, the weight may sometimes be removed entirely. Experiment will determine the best position. **The Stroke Regulator Screw** where the supply of water is small should be set for a short stroke of the impetus valve, which causes the waste of a smaller amount of water in proportion to that discharged. If the supply is abundant, the stroke may be lengthened. By experiment it may be determined what stroke is the most satisfactory. **The Air Chamber** is automatically and constantly supplied with air by the peculiar action and construction of the valves. The Hydraeram is the simplest and most efficient machine of the kind.

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE DEMING "HYDRAERAM"

A MODERN HYDRAULIC RAM

FIG. 695

The apparatus represented by the annexed engraving is our new Automatic Hydraulic Pumping Engine, or Hydraulic Ram, which we designate as **Fig. 695** and have given the name of "**Hydraeram.**" This name has been registered at the patent office as a trade mark. We have been granted a design patent, while other patents are pending on this apparatus.

The **Hydraeram** is more efficient than other machines of the kind. It is new in design and construction, as may be seen by the illustration. The Air Chamber, Base, and Impetus Valve Chamber are cast integral. The facility with which the **Hydraeram** may be adapted to various conditions surpasses everything in the line of automatic pumping apparatus. The **Hydraeram** can be regulated without detaching any of the parts, and under favorable conditions will discharge water to a height of twenty times the amount of fall.

The Automatic Air Supply is attained by the valve construction, and is so regulated as to give the most efficient results.

In ordering a "**Hydraeram,**" care should be exercised in giving us as near as possible the amount of water *per minute* that can be supplied to the machine; the

amount of water required every twenty-four hours; the *number of feet fall* (vertically) that can be obtained from the reservoir to the "**Hydraeram,**" and the length of Drive Pipe; also the *vertical* and horizontal distance the water must be discharged, *i. e.*, height water is elevated, and length of Discharge Pipe. *Directions for setting and starting* furnished with each machine. *Specification sheets for giving exact data, with instructions,* will be furnished on application.

SIZES AND PRICES.

No.	Quantity of water supplied per minute to which Hydraeram is adapted.	Approximate length of Drive Pipe.	Sizes of Pipe.		Extreme Height.	Diameter of Base.	Cipher.	Price.
			Drive.	Dis-charge.				
*10	1½ to 3 gals.	10 to 40 ft.	¾ in.	½ in.	12¼ in.	5½ in.	Hydrum	12 50
11	2 " 5 "	10 " 50 "	1 " "	½ " "	17 " "	8 " "	Hydric	15 00
12	3 " 10 "	15 " 50 "	1½ " "	¾ " "	23 " "	10 " "	Hydride	25 00
13	6 " 15 "	25 " 75 "	2 " "	1 " "	29 " "	12 " "	Hydrogen	45 00
14	10 " 25 "	25 " 100 "	2½ " "	1¼ " "	35 " "	16 " "	Hydromel	75 00
15	20 " 60 "	40 " 125 "	4 " "	2 " "	46 " "	19 " "	Hydropath	125 00
16	†60 " 200 "	40 " 150 "	6 " "	3 " "	60 " "	24 " "	Hydrozoa	225 00
20	†100 " 1200 "	60 " 300 "	15 " "	8 " "	162 " "	60 " "	Hydrotic	900 00

*The No. 10 Hydraeram made entirely of Brass, \$30.00 list.

†Approximate.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

THE DEMING HYDRAULIC PUMP

WITH BRACKETS AND DRIP PAN, BRASS-LINED CYLINDERS, BRASS VALVE CHAMBER AND VALVE STARTER

Fig. 685

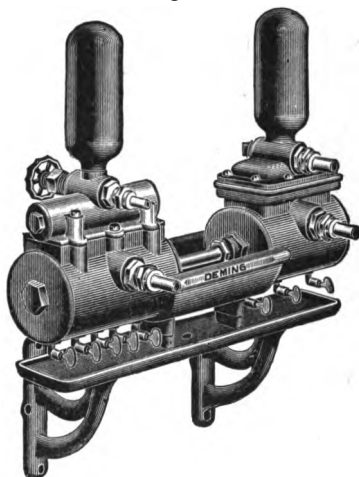


Fig. 685 is similar to a single cylinder Steam Pump in appearance and construction, but is operated by water pressure instead of steam. It is a most useful and practical pump. The pressure from the water mains supplies the power by which cistern or other pure water may be pumped into a tank, or direct into the house system, furnishing hot and cold water. The upper stories of tall buildings where otherwise the pressure would be inadequate may by this Pump be supplied with water.

Both of the cylinders are brass-lined, and the "cut off" (main and auxiliary) valves and the valve chamber are solid brass, as are the plungers and the plunger rod.

It is provided with an air chamber on each end, relieving the pump of sudden jars and insuring smoothness of motion. Many hydraulic pumps are on the market, but few of them have distinctive merit, for as a rule they are complicated, and seldom work long without repairs. It is not only exasperating but dangerous when a pump refuses to work and the supply in the hot water tank becomes exhausted.

By using the improved **Deming Hydraulic Pump** the householder's troubles from this source are at an end, and we declare that Fig. 685 is the most economical pump manufactured. When pumping direct into the house system no house tank is necessary, but an *automatic cut off valve* should be used to prevent waste of water. Its operation is simple. It is placed on the line of city supply pipe, allowing pump to work until the pressure in the house system reaches the desired point, when the valve closes, and by shutting off the city supply stops the pump. When water, either hot or cold, is drawn, the valve opens and the pump starts.

In general it may be estimated that No. 1 will elevate water *as many feet*; No. 2, *one and one-half times as many feet*; No. 3, *twice as many feet*, and No. 4, *two and one-half times as many feet*, as there are pounds pressure to the square inch at the Pump in the City Supply Pipe. With ample pressure, No. 1 is the *most economical*, since it uses a less amount of water in the Power Cylinder than it discharges from the Pump.

SIZES AND PRICES

No.	POWER CYLINDER			PUMP CYLINDER			Length of Stroke	DIMENSIONS		Cipher	Price
	Diam.	Supply	Waste	Diam.	Suct'n	Disch'ge		Lgth.	Height		
1	2½ in.	¾ in.	¾ in.	3 in.	¾ in.	¾ inch	3 inch	18 in.	15½ in.	Keenly	40 00
2	2½ "	¾ "	¾ "	2½ "	¾ "	¾ "	3 "	18 "	15½ "	Keeper	40 00
3	3 "	¾ "	¾ "	2½ "	¾ "	¾ "	3 "	18 "	15½ "	Kidnap	40 00
4	3 "	¾ "	¾ "	2 "	¾ "	¾ "	3 "	18 "	15½ "	Kindred	40 00

Automatic cut off valve complete, as described above(Cipher, *Krumhorn*) 5 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

THE "TOTAL ECLIPSE" HYDRANT AND STREET WASHER

Fig. 665—Hydrant WITH COMPRESSION ANTI-FREEZING VALVES



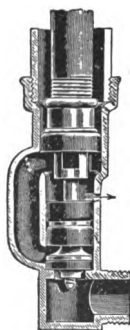
The annexed cuts represent the "Total Eclipse" Hydrant and Street Washer, which we can confidently offer to the trade with the assurance that they will give perfect satisfaction.

They possess the following points of excellence: Compression Anti-freezing Valve; the Valves and all working parts of brass; galvanized pipe is used; they close against a pressure and no water remains in the top working parts; cannot waste when open; waste positively open when Valve is closed; inlet for Iron or Lead Pipe; can be repaired without digging up; every Valve tested and free from flows; simple, durable, reliable, and reasonable in price.

Fig. 666—Street Washer



SECTIONAL VIEW OF VALVE



SIZES AND PRICES

Length under ground in feet	$\frac{3}{4}$ INCH OPENING				1 INCH OPENING				1 $\frac{1}{4}$ INCH OPENING	
	Fig. 665		Fig. 666		Fig. 665		Fig. 666		Fig. 665	Fig. 666
	Cipher	Price	Cipher	Price	Cipher	Price	Cipher	Price	Price	Price
1 $\frac{1}{2}$	Headman	9 80	Headwork	6 60	Heaping	12 70	Heaved	9 50	19 70	18 00
2	Headmost	10 10	Healed	6 85	Hearer	13 50	Heaving	10 25	20 50	18 75
3	Headpiece	10 60	Healer	7 35	Hearing	14 30	Honor	11 10	21 80	20 10
4	Headspring	11 00	Healing	7 75	Hearten	14 75	Honored	11 70	22 25	20 70
5	Headship	11 50	Health	8 25	Heartily	15 30	Honoring	12 00	22 80	21 00
6	Headstrong	12 10	Healthful	8 85	Heartless	16 00	Honorable	12 75	23 75	21 75
8	Headway	13 50	Healthy	10 25	Hearty	18 50	Honorary	15 25	27 00	25 25
10	Headwind	16 00	Heaped	12 75	Heathen	21 00	Hooded	17 75	30 00	28 75

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

CAST IRON AND WROUGHT STEEL SINKS

"COLUMBUS" WROUGHT STEEL SINKS



These Sinks are made from one plate of wrought steel and are lighter, stronger and more durable than Cast Iron Sinks. The strainer and coupling for pipe are attached firmly to the Sink. The entire coupling is made of Brass threaded for Iron Pipe, and a Brass Soldering Tube is added for Lead Pipe.

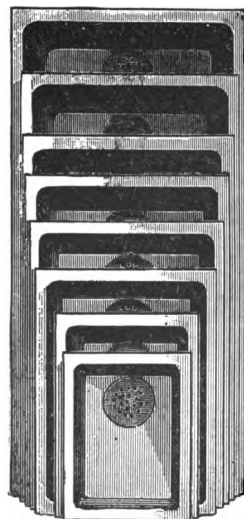
SIZES AND PRICES

Size Inches	PAINTED	GALVANIZED	GRAY ENAMELED	WHITE ENAMELED
	Price	Price	Price	Price
16 x 24 x 6	2 00	4 00	6 50	7 50
18 x 30 x 6	2 80	5 10	8 50	10 00
18 x 36 x 6	3 25	6 50	9 50	11 00
20 x 30 x 6	3 00	6 25	9 00	10 50
20 x 36 x 6	3 70	7 75	10 50	12 00
20 x 40 x 6	4 00	8 50	11 50	13 00

"NEW ERA" WROUGHT STEEL SINKS

These Sinks are substantially the same as the Columbus, except they are lighter weight and have connections same as on Cast Iron Sinks, for Lead Pipe. List prices same as Columbus Steel Sinks above. *Sinks on this page are 6 inches deep.*

PLUMBERS' CAST IRON SINKS



Size Inches	PAINTED	GALVANIZED	WHITE ENAMELED
	Price	Price	Price
12 x 18 x 6	1 25	2 60	4 75
14 x 20 x 6	1 50	3 20	6 00
15 x 27 x 6	2 00	4 25	7 25
16 x 24 x 6	1 80	4 00	6 50
16 x 28 x 6	2 10	4 50	7 50
16 x 30 x 6	2 25	4 75	7 75
18 x 24 x 6	2 10	4 30	7 00
18 x 30 x 6	2 50	5 10	8 50
18 x 32 x 6	3 00	6 25	9 50
18 x 36 x 6	3 00	6 50	9 50
20 x 30 x 6	3 00	6 25	9 00
20 x 36 x 6	3 70	7 75	10 50
20 x 40 x 6	4 00	8 50	11 50
20 x 42 x 6	4 25	9 00	12 00
22 x 42 x 6	4 25	9 00	12 00
24 x 48 x 6	5 75	12 25	15 00
24 x 50 x 6	7 50	16 00	18 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

BRASS GOODS—COCKS

Fig. 910



Steam.

Fig. 911



Service.

Fig. 912



Three-Way.

Size, inches.....		$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Steam Cocks, Square Head.....	each,	0 85	1 00	1 25	1 70	2 35	3 70	4 85	7 30	14 50	22 50
" " Flat.....	"	85	1 00	1 25	1 70	2 35	3 70	4 85	7 30	14 50	22 50
" " Square Head with Check,.....	"			1 40	1 90	2 55	3 95	5 15	7 65	15 00	23 25
Three-Way Cocks.....	"			2 50	3 00	3 75	5 75	7 15	11 00	18 75	26 00
Gas Service Cocks.....	"		75	85	95	1 15	1 50	2 25	3 10	5 00	11 00

Fig. 913



Lever Handle, Rough Stop.

Fig. 914



T Handle, Rough Stop.

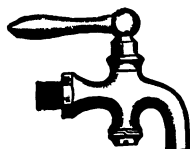
Fig. 915



T Handle, Hydrant.

Size, inches.....		$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Rough Stops, Lever Handle.....	per dozen,	16 00	23 50	34 00	53 50	74 50	125 00
" " " Check and Waste.....	"	18 00	25 50	37 00	57 50	80 50	135 00
" " " T " Check and Waste.....	"	15 00	22 00	32 00	51 00	71 00	120 00
" " " " Check and Waste.....	"	17 00	24 00	35 00	55 00	77 00	130 00
Hydrant Cocks, Check and Waste.....	"	16 00	24 00	37 00	60 00	.....	.....

Fig. 916



Lever Handle, Plain Bibb.

Lever Handle Bibb Cocks, for Iron Pipe

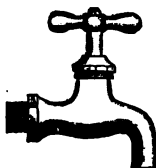
Size, inches..		$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Plain } per	13 00	16 00	23 00	35 00	56 00	78 00	160 00	
Rough } doz.								
Plain } per	14 00	17 00	26 00	39 00	64 00	90 00	180 00	
Fin'd } doz.								
Hose } per	.....	18 00	25 00	38 00	60 00	84 00	170 00	
Rough } doz.								
Hose } per	.....	19 00	28 00	42 00	68 00	96 00	190 00	
Fin'd } doz.								

Fig. 917.



Lever Handle, Hose Bibb.

Fig. 918

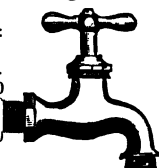


T Handle Compression, Plain Bibb.

Compression Bibb Cocks, for Iron Pipe

Size, Inches.....		$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Plain Rough, per doz.	11 50	12 50	19 00	33 00	48 00	74 00	
" Finished, "	12 00	13 00	20 00	37 00	56 00	86 00	
Hose Rough, "	.....	14 50	21 00	36 00	52 00	80 00	
" Finished, "	.....	15 00	22 00	40 00	60 00	92 00	

Fig. 919



T Handle Compression, Hose Bibb.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

BRASS GOODS—VALVES

Fig. 900



Globe and Angle Valves—Figs. 900 and 901

Size, inches.....	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1
Price, each	0 72	0 72	0 77	1 00	1 28	1 80
Size, inches.....	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$
Price, each	2 52	3 50	5 30	10 00	14 40	26 50

Fig. 901



Fig. 902



Size, inches.....	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price, each	1 25	1 50	2 00	2 50	3 50	5 00	8 00	16 00	24 00

Hose Valves—Fig. 903

Size, inches.....	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Price, each	3 15	3 70	4 75	7 00	8 50

Horizontal Check Valves—Fig. 904

Size, inches.....	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1
Price, each	0 65	0 65	0 70	0 90	1 15	1 60
Size, inches.....	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	
Price, each.....	2 25	3 15	4 75	9 00	13 00	

Fig. 904



Vertical Check Valves—Fig. 905

Size, inches.....	$\frac{1}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, each	0 72	0 77	1 00	1 26	1 80	2 52	3 50	5 30

Fig. 906



Low Pressure Safety Valves—Fig. 907

Size, inches.....	$\frac{1}{8}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, each	2 60	3 30	4 50	6 35	8 65

Fig. 907



Standard Safety Valves—Fig. 908

Size, in.....	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price, ea.....	2 20	2 50	3 25	3 90	4 70	7 15	9 00	12 50	22 50	33 50

Fig. 908



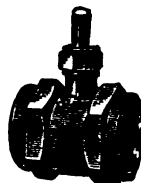
Straight-Way Double Gate Valves—Fig. 908

Size, inches.....	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price, each	1 30	1 75	2 50	3 50	5 00	7 50	14 00	20 00

Butterfly Valves—Fig. 909

Size, inches.....	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price, each	4 40	5 65	6 75	10 00	13 75	21 00

Fig. 909



N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

ACCESSORIES FOR POWER PUMPS

BRASS AIR AND CYLINDER COCKS

Fig. 788



Tee Handle Air Cock

Fig. 924



Lever Handle Air Cock

Fig. 791



Lever Handle Cylinder Cock

Sizes for Iron Pipe, inches.....	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Fig. 788, Air Cock, Tee Handle.....	.40	.40	.50	.60	.....
Fig. 924, " Lever ".....	.55	.55	.65	.75	.....
Fig. 791, Cylinder Cock, Lever Handle.....	.....	1.15	1.30	1.85	2.60



Plain Brass

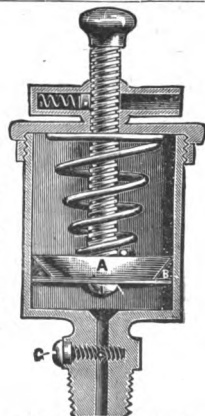
Glass Body with
Set-FeedGlass Body with Sight-Feed,
Set-Feed and Stop-Feed

Sizes for Iron Pipe, inches.....	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Outside Diam. of Bodies.....	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{2}$
Plain Brass, price.....	.30	.35	.40	.60	.90	1.25	1.75	2.75
Outside Diam. of Glass.....	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	3	$3\frac{1}{2}$
With Set-Feed, Finished Brass, price....	1.30	1.50	1.70	1.90	2.10	2.45	4.80	7.00
With Sight-Feed, " " ".....	3.00	3.25	3.50	3.75	4.00	4.45	7.30	9.50



BRASS GREASE CUPS

Sizes for Iron Pipe	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{2}$
The Rex, Outside Diameter.....	$1\frac{1}{2}$	2	$2\frac{3}{8}$	$2\frac{3}{4}$	.....	.....	.....
The Rex, price.....	.55	.70	.90	1.20	.....	.....	.....
The Moon, Outside Diameter.....	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	$2\frac{3}{4}$	$3\frac{1}{4}$	.....
The Moon, price....	1.50	2.00	2.50	3.20	4.30	5.50	.....



"Rex"—Spun Top

"Moon"—Automatic

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

BRASS GOODS—HOSE

Fig. 945

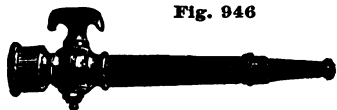


Hose Pipes. Screw Tip—Fig. 945

Size, inches.....	$\frac{3}{4}$	$\frac{1}{2}$	1	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{2}$
Length, inches.....	$7\frac{1}{2}$	12	$8\frac{1}{2}$	$12\frac{1}{2}$	11	17	13	19	30
Price per dozen.....	8 00	10 00	10 00	12 00	20 00	30 00	25 00	38 00	144 00

Fig. 946

Hose Pipes, with Cock—Fig. 946



Size, inches.....	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Length, inches.....	$6\frac{3}{4}$	8	12	$9\frac{1}{2}$	20	$22\frac{1}{4}$	25
Price, dozen.....	11 00	13 00	18 00	20 00	55 00	84 00	130 00

Fig. 947

Hose Nozzles, to Tie on—Fig. 947



Size, inches.....	$\frac{3}{4}$	1	$1\frac{1}{4}$
Length, inches.....	$5\frac{1}{2}$	6	$6\frac{3}{4}$
Price, dozen.....	4 00	5 00	12 00

Fig. 948.—Throwing Spray.



Also throws solid stream.

"Gem" Hose Nozzles—Fig. 948

Size, inches.....	$\frac{3}{4}$	1
"Gem" Hose Nozzles, with graduating spray. Price, dozen.....	10 00	12 00

Fig. 949

Hose Couplings—Fig. 949



Size, inches.....	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Complete. Price, dozen.....	2 40	2 40	4 40	10 00	14 00	24 00	48 00	75 00
Half Coupling (Female.) Price, dozen.....	1 80	1 80	3 00	7 20	9 60	16 20	31 80	50 00

Fig. 955

Fig. 951



Hose Clamps and Hose Nipples

Size, inches....	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Clamps. Fig. 955. Dozen..	1 50	1 50	2 00	2 50	3 00	4 00	.....	.....	.....	.....
Nipples. Fig. 951. Dozen..	3 50	3 50	5 00	9 00	10 00	14 00	28 00	40 00	50 00	75 00

Caldwell's Wire Hose Bands

No. 2, for $\frac{1}{2}$ in. Hose, 3 in. long, per doz.,	0 40	No. 10, for 1 in. Hose, 5 in. long, per doz.,	0 80
No. 4, " $\frac{3}{4}$ " " 3 in. " " " " " " " " " "	40	No. 12, " 1 " " 5 in. " " " " " " " " " "	80
No. 6, " $\frac{1}{2}$ " " 4 in. " " " " " " " " " "	60	No. 14, " $1\frac{1}{4}$ " " 6 in. " " " " " " " " " "	1 00
No. 8, " $\frac{3}{4}$ " " 4 in. " " " " " " " " " "	60	No. 16, " $1\frac{1}{2}$ " " 6 in. " " " " " " " " " "	1 00

Hose Band Fasteners for above—No. 1, $\frac{1}{2}$ to 1 inch, inclusive, 50 cts. No. 2, $1\frac{1}{4}$ to $2\frac{1}{2}$ inch, inclusive, 75 cts, each.



The Success Lawn Sprinkler.

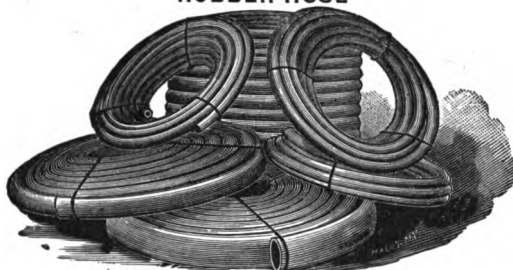
Fig. 640. The Success Lawn Sprinkler, with Japanned Malleable Iron Sled, Nickel-plated Brass Nozzle and Hose Connection.

Price (neatly put up in box), each..... 1 00

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

RUBBER, COTTON AND LINEN HOSE

RUBBER HOSE

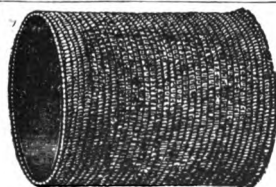


Size, inches	½	¾	1	1¼	1½	1¾	2	2¼	2½	2¾	3	4	5	6	7	8	9	10
2 Ply Conducting.....	0 20	0 25	0 33	0 42	0 50	0 58	0 66	0 75	0 83	0 92	0 99	1 32	1 65	1 98	2 81	2 64	2 97	3 33
3 " Hydrant.....	25	30	40	50	60	70	80	90	1 00	1 10	1 20	1 60	2 00	2 40	2 80	3 20	3 60	4 00
4 " Engine.....	30	37	50	62	75	87	1 00	1 12	1 25	1 37	1 50	2 00	2 50	3 00	3 50	4 00	4 50	5 00

Five and 6 ply Hose supplied at an advance of 25% and 50% respectively, on 4 ply prices.

STEAM, BREWERS', AIR BRAKE AND OIL HOSE

Internal Diameter, inches.....	½	¾	1	1¼	1½	1¾	2	2½	3
3 Ply.....	0 43	0 51	0 67	0 85	1 02	1 25	1 45	1 66	.....
4 ".....	51	67	83	1 04	1 25	1 45	1 66	.....	.....
5 ".....	63	83	1 08	1 30	1 56	1 81	2 07	2 60	3 50
6 ".....	76	1 00	1 24	1 56	1 87	2 17	2 49	3 12	4 20



Cotton Hose, Rubber-lined



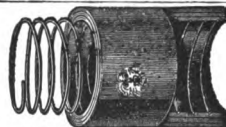
Linen Hose

COTTON AND LINEN HOSE

Size, inches.....	½	¾	1	1¼	1½	1¾	2	2¼	2½	3
Cotton Hose, Rubber-lined.....	0 20	0 25	0 35	0 45	0 50	.....	0 60	0 65	0 70	.....
Linen " Unlined.....	.....	.....	16	18	20	0 23	25	27	29	0 35
" " Rubber-lined.....	.....	.....	.....	40	45	.....	55	60	65	.....



Smooth Bore Suction Hose, on Round Steel Wire



Spiral Wire Suction Hose

SMOOTH BORE SUCTION HOSE















Size, inches.....	2	2½	3	3½	4	4½	5	6	7	8	9	10	12
Price, per foot.	2 60	3 50	4 50	5 50	6 50	7 50	8 50	10 50	13 50	16 50	19 50	22 50	27 50

SPIRAL WIRE, PORTABLE WIRE AND HARD RUBBER SUCTION HOSE

Inside Diameter, inches.....	¾	1	1¼	1½	1¾	2	2½
Spiral Wire Suction Hose.....	0 77	1 00	1 25	1 65	2 10	2 50	.....
Portable " ".....	.....	.....	93	1 13	.....	1 50	1 88
Hard Rubber " ".....	65	75	98	1 13	.....	.....	.....

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

REVISED PRICE LIST OF PIPE FITTINGS

	Sizes, inches.....	¼	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6
	Elbows, Cast.....	05	06	06	08	10½	16	20	28	50	75	1 05	1 20	1 75	2 00
	" " 45.....	05	06	07	10	12	18	24	34	60	90	1 25	1 45	2 20	2 50
	" " R.&L.....	06	06	07	09	12	18	24	32	60	85	1 25	1 45	2 20	2 50
	" Malleable.....	04	06	10	15	22	25	35	50	80	1 50	2 25	3 00		
	" Galvanized.....	06	08	14	20	32	40	60	90	1 35	2 20	3 75	5 00		
	Street Elbows, Mal. Galv.	10	10	12	20	25	40	55	90						
		12	12	15	28	35	55	80	1 30						
	Tees, Cast.....	08	08	09	12	15	23	29	41	73	1 10	1 50	1 75	2 55	3 00
	" Reducing.....				10	14	17	27	33	47	83	1 25	1 75	2 00	4 00
	" Malleable.....	07	08	11	15	25	30	45	60	1 05	1 70	2 50	3 40	3 50	4 60
	" Galvanized.....	09	10	16	20	38	50	70	1 09	1 90	3 09	4 25	5 75		
	Crosses, Cast.....		15	16	22	27	42	53	75	1 30	2 00	2 70	3 15	4 60	5 50
	" Reducing.....			18	25	30	46	60	83	1 45	2 20	3 00	3 50	5 10	6 00
	" Malleable.....	08	10	12	20	30	40	60	1 00	1 75	3 00	3 25	5 25	6 00	8 00
	" Galvanized.....			17	25	45	60	90	1 50	2 75					
	Coupl'gs, Wrought.	05	06	07	10	13	17	21	28	40	60	80	1 00	1 50	2 40
	" Galvanized.....	06	08	10	13	18	25	32	40	55	80	1 05	1 40	2 00	3 25
	" Mal. R.&L.....	04	05	08	12	16	25	36	52						
	" Galv.....	06	08	10	17	25	35	55	75						
	Nipples, Short.....	04	04	05	06	08	11	13	18	39	48	75	85	1 25	1 55
	" Long.....	06	06	07	09	13	17	20	27	59	72	1 05	1 30	1 70	2 45
	" Short, Galv.....	06	06	06	08	11	17	21	27	56	70	1 20	1 35	1 85	2 30
	" Long.....	11	11	11	14	19	29	35	47	86	1 10	1 70	1 87	2 60	3 15
	Bushings, Plain.....		04	04	05	06	07	09	14	21	30	40	50	75	93
	" Galvanized.....		08	08	10	12	14	18	28	42	60	80	1 00		1 25
	Plugs, Plain.....	02	02	02	03	04	05	07	10	18	25	38	42	65	88
	" Galvanized.....	04	04	04	06	08	10	14	20	36	50	76	84	1 30	1 75
	Reducers, Cast.....													1 85	2 00
	" Malleable.....	03	03	05	10	16	20	28	45	70	1 00	1 50	1 85		2 70
	" Galvanized.....		08	15	25	35	45	75	1 05	1 65	2 40	3 05			
	Caps, Cast.....													1 05	1 20
	" Malleable.....	03	04	05	08	12	16	24	32	45	85	1 00	1 20		1 55
	" Galvanized.....	04	05	08	12	17	24	38	52	76	1 30	1 60	2 00		
	Locknuts, Mall'ble	02	03	04	05	07	09	11	18						
	" Galvanized	03	04	05	07	10	14	20	30						
	" Cast.....								27	34	47	64	85	90	1 30
	Unions, Malleable..	18	20	22	27	33	46	58	75	1 55	2 10	3 65	4 35		
	" Galvanized	27	30	33	40	50	70	90	1 15	2 35	3 15	5 50	6 50		
	Flanged Unions....														
			40	46	52	64	78	1 00	1 25	1 50	1 80	2 10	2 70	3 15	3 95
	Sizes, inches.....	¼	½	¾	1	1¼	1½	2	2½	3					
	Standard Length.....	2½	3	3½	4	4½	5	5½	6	7	8				
	Long Screws, price each...	30	35	40	55	75	1 00	1 30	1 70	2 70	3 70				

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

REVISED PRICE LIST OF WROUGHT-IRON PIPE

FOR STEAM, GAS AND WATER.

ADOPTED FEBRUARY 15, 1900.

Inside Diam.	PLAIN OR BLACK		GALVANIZED		Welded	Thick-ness	Weight per Foot	Threads to the Inch
	Price per Foot	*Cipher	Price per Foot	*Cipher				
1/8 inch	05 1/2	Allegheny	05 1/2	.....	Butt	.068 in.	.24 lbs.	27
1/4 "	05 1/2	Baltimore	05 1/2	Amazon	"	.088 "	.42 "	18
3/8 "	05 1/2	Camden	05 1/2	Bay	"	.091 "	.56 "	18
1/2 "	08 1/2	Detroit	08 1/2	Colorado	"	.109 "	.84 "	14
3/4 "	11 1/2	Erie	11 1/2	Danube	"	.113 "	1.12 "	14
1 "	16 1/2	Fairmount	16 1/2	Elbe	"	.134 "	1.67 "	11 1/2
1 1/4 "	22 1/2	Galena	22 1/2	Firth	"	.140 "	2.24 "	11 1/2
1 1/2 "	27	Harrisburg	27	Ganges	Lap	.145 "	2.68 "	11 1/2
2 "	36	Ithaca	36	Hudson	"	.154 "	3.61 "	11 1/2
2 1/4 "	57 1/2	Jamestown	57 1/2	Indus	"	.204 "	5.74 "	8
2 1/2 "	75 1/2	Kensington	75 1/2	Junata	"	.217 "	7.54 "	8
3 "	95	Lancaster	95	Kanawha	"	.228 "	9.00 "	8
3 1/2 "	1 08	Macon	1 08	Lake	"	.237 "	10.66 "	8
4 "	1 30	Quincy	1 30	Miami	"	.246 "	12.49 "	8
4 1/2 "	1 45	Newark	1 45	Nile	"	.259 "	14.50 "	8
5 "	1 88	Oneida	1 88	Osage	"	.280 "	18.76 "	8
6 "	2 35	Paris	2 35	Po	"	.301 "	23.27 "	8
7 "	2 82	Reading	2 82	Rhine	"	.322 "	28.18 "	8
8 "	3 40	Salem	.....	Seine	"	.344 "	33.70 "	8
9 "	4 25	Troy	.....	Twined	"	.366 "	40.00 "	8
10 "	5 20	Utica	.....	Ural	"	.375 "	49.00 "	8

*The Cipher words above refer to sizes of pipe. The Cipher Code is for ordering quantities of Pipe by telegraph. Always write the Cipher word for quantity before Cipher word representing size of Pipe.

CIPHER CODE

No. of Feet	Cipher	No. of Feet	Cipher	No. of Feet	Cipher	No. of Feet	Cipher
100	Asia	700	Germany	4000	Maine	10000	Texas
200	Belgium	800	Holland	5000	Nevada	15000	Uruguay
300	Chili	900	Ireland	6000	Ohio	20000	Valparaiso
400	Denmark	1000	Japan	7000	Pern	25000	Washington
500	Egypt	2000	Kentucky	8000	Russia	30000	Xenia
600	France	3000	Liberia	9000	Spain	40000	Yorkville

PRICE LIST OF ARTESIAN WELL CASING



Nominal Inside Diameter	Price per Foot	Actual Outside Diameter.	Nominal Weight per Ft.	Threads to the Inch
2 inches	23	2 1/4 inches	2.22 pounds	14
2 1/4 "	29	2 3/4 "	2.82 "	14
2 3/4 "	32	3 "	3.13 "	14
3 "	35	3 1/4 "	3.45 "	14
3 1/4 "	41	3 1/2 "	4.10 "	14
3 1/2 "	45	3 3/4 "	4.45 "	14
3 3/4 "	48	4 "	4.78 "	14
4 "	56	4 1/4 "	5.56 "	14
4 1/4 "	60	4 1/2 "	6.00 "	14
4 1/2 "	64	4 3/4 "	6.36 "	14
4 3/4 "	68	5 "	6.73 "	14
5 "	78	5 1/4 "	7.80 "	14
5 1/4 "	82	5 1/2 "	8.20 "	14
5 1/2 "	87	6 "	8.62 "	14
6 "	1 05	6 1/4 "	10.46 "	14
6 1/4 "	1 16	6 1/2 "	11.58 "	14
6 1/2 "	1 24	7 "	12.34 "	14
6 3/4 "	1 36	7 1/4 "	13.55 "	14
7 "	1 55	7 1/2 "	15.41 "	11 1/2
7 1/4 "	1 61	8 "	16.07 "	11 1/2
7 1/2 "	1 76	8 1/4 "	17.60 "	11 1/2
8 "	2 20	10 "	21.90 "	11 1/2
8 1/4 "	2 68	11 "	26.72 "	11 1/2
10 1/2 "	3 05	12 "	30.35 "	11 1/2

*When ordering Casing, specify whether wanted with Inserted Joint ("A"), or Screw and Socket ("B") Coupling.

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

PIPE TONGS



Fig. 840

COMMON PIPE TONGS

Size for Pipe.....	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price, each.....	0 60	0 65	0 70	0 75	0 90	1 10	1 80	1 50	1 90	2 50	4 25

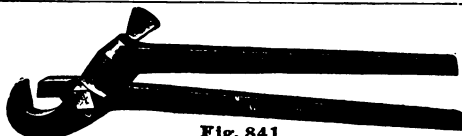


Fig. 841

BROWN'S ADJUSTABLE TONGS

Number.....	1	$1\frac{1}{2}$	2	3	4	5	6
Takes Pipe, inches.....	$\frac{1}{8}$ to $\frac{3}{4}$	$\frac{3}{8}$ to 1	$\frac{1}{2}$ to $1\frac{1}{4}$	1 to 2	$1\frac{1}{2}$ to 3	$2\frac{1}{2}$ to 4	3 to 6
Price, each.....	1 80	1 65	2 00	3 00	6 00	11 00	25 00

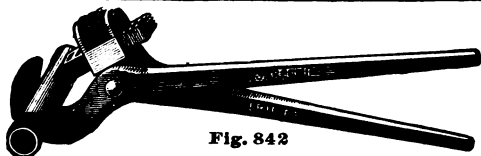


Fig. 842

JARECKI ADJUSTABLE TONGS

Number.....	1	2	3	4	5
Takes pipe, inches.....	$\frac{1}{8}$ to 1	$\frac{1}{4}$ to $1\frac{1}{4}$	$\frac{1}{2}$ to $2\frac{1}{2}$	$\frac{3}{4}$ to $3\frac{1}{2}$	$3\frac{1}{2}$ to 6
Price, each.....	3 50	4 00	5 00	9 00	16 00



Fig. 843

ROBBINS CHAIN TONGS

Number.....	2	3	4	5	6	7
Takes Pipe, inches.....	1 to 2	$1\frac{1}{4}$ to 4	2 to 6	$2\frac{1}{2}$ to 8	4 to 10	4 to 16
Price, each.....	5 50	6 25	9 00	12 50	16 00	30 00



Fig. 839

"VULCAN" CHAIN TONGS

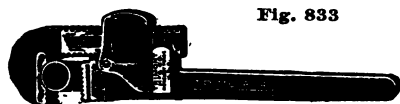
Number.....	10	11	12	13	$13\frac{1}{2}$	14	15
Price, with flat-link chain, each	2 50	3 50	5 00	7 00	9 00	11 00	18 00
Price, with cable " "	2 25	3 25	4 50	6 25	7 75	9 50	16 00
Takes Pipe, inches.....	$\frac{1}{8}$ to $\frac{3}{4}$	$\frac{1}{4}$ to $1\frac{1}{2}$	$\frac{1}{2}$ to $2\frac{1}{2}$	$\frac{3}{4}$ to 4	1 to 6	$1\frac{1}{2}$ to 8	2 to 12
Length over all, inches.....	13 $\frac{3}{4}$	20	27	37	44 $\frac{1}{2}$	50 $\frac{1}{2}$	64 $\frac{1}{2}$

N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

PIPE WRENCHES, CUTTERS, ETC.

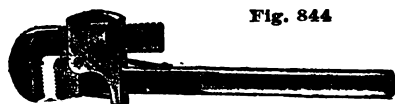
TRIMO AND STILLSON WRENCHES

Fig. 833



Trimo Wrench

Fig. 844

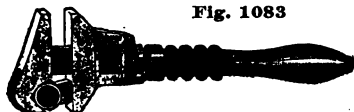


Stillson Wrench

SIZES AND PRICES

Length, Open, inches.....	6	8	10	14	18	24	36	48
Takes Pipe, inches.....	$\frac{1}{8}$ to $\frac{1}{2}$	$\frac{1}{8}$ to $\frac{3}{4}$	$\frac{1}{8}$ to 1	$\frac{1}{4}$ to $1\frac{1}{2}$	$\frac{1}{4}$ to 2	$\frac{1}{4}$ to $2\frac{1}{2}$	$\frac{1}{2}$ to $3\frac{1}{2}$	1 to 5
Price.....each	2 00	2 00	2 25	3 00	4 00	6 00	12 00	18 00
Extra Jaws.....	67	67	75	1 00	1 33	2 00	4 00	6 00
Nuts.....	20	20	27	35	42	50	65	80
Inserted Jaws (Trimo).....	25	25	33	50	55	65	1 00	1 25
Frames.....	25	25	33	45	55	65	75	1 00

Fig. 1083



Bemis & Call Combination Wrench



No. 1



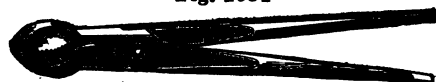
No. 2 and larger

Alligator Wrench, Fig. 856

Inches.....	10	12	15
Takes Pipe, inches	$\frac{1}{2}$ to 1	$\frac{1}{2}$ to $1\frac{1}{2}$	$\frac{1}{2}$ to 2
Long Nut...per doz	25 25	28 50	40 50
Short ".....	23 00	26 00	37 00
Extra Grips...each	25	30	35

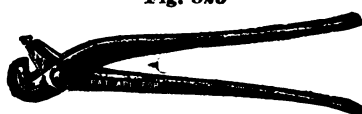
Number.....	1	2	3	4	5
Length, ins.,	5 $\frac{1}{4}$	10	16	22	27
Takes Pipe...	$\frac{1}{8}$ to $\frac{3}{8}$	$\frac{3}{8}$ to $\frac{1}{2}$	$\frac{1}{2}$ to $1\frac{1}{4}$	$1\frac{1}{4}$ to 2	2 to 3
Price, each...	0 33	1 00	2 00	3 00	4 50

Fig. 1084



Gas Pliers

Fig. 825

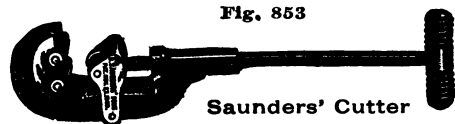


Never Slip Rod Tongs

Size, inches....	5	6	7	8	9	10	12	14
Price, per doz.	4 80	6 50	7 40	8 25	9 25	10 70	13 00	17 00

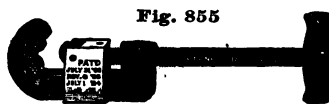
Adjustable 5-16 to $\frac{1}{2}$ inch, each.....	1 50
--	------

Fig. 853



Saunders' Cutter

Fig. 855



Barnes' Cutter

Numbers.....	1	2	3
Cuts Pipe from.....	$\frac{1}{8}$ to 1	1 to 2	2 to 3
Price Complete.....	3 00	4 50	11 00
" Cutt'r Block & Whl's	1 25	1 75	2 75
" Wheels only....	24	32	60
" Rollers only.....	24	32	50

Numbers.....	1	2	3	4	5
Cuts Pipe, inches..	$\frac{1}{8}$ to 1	$\frac{1}{2}$ to 2	$1\frac{1}{2}$ to 3	3 to 4	4 to 6
Price.....each	4 50	6 00	10 00	20 00	30 00
Ex. Wheels, ".....	25	30	40	50	75
Wheel Pins, ".....	10	10	10	10	20

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

FITTERS' TOOLS, VISES, ETC.

Die and Holder.

Fig. 851



Fig. 852



Lightning Taps and Dies ($\frac{3}{8}$ x 16 th'ds, or 7-16 x 14 th'ds.)

*Dies with Guides, each	1 20
Holders, each	75
Taps, each	65

No. 12—2 pair Dies, cutting $\frac{3}{8}$, 14 threads; 7-16, 12 threads...	3 00
No. 13—3 pair Dies, cutting $\frac{3}{8}$, 14 threads; 7-16, 12 threads; $\frac{1}{2}$, 12 threads.	3 50

*Dies only, each, \$1.00.

Fig. 849—Tap



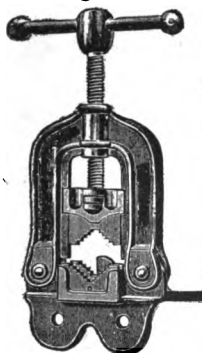
Fig. 850—Reamer



Pipe Taps and Reamers

Size, inches.....	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3
Taps, Right or Left.....	1 12	1 25	1 50	1 87	2 50	3 12	3 75	4 65	6 25	10 50	15 00
Reamers.....	1 12	1 25	1 50	1 87	2 50	3 12	3 75	4 65	6 25	10 50	15 00

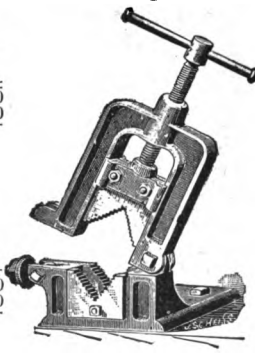
Fig. 859



Malleable Hinge Vise, Fig. 859

No. 1, Holds Pipe $\frac{1}{4}$ to 2 inch.....	each	10 00
" 2, " " $\frac{1}{4}$ " 3 "	"	14 00

Fig. 743



Phoenix Vise, Fig. 743

No. 5, Holds Pipe $\frac{1}{8}$ to 2 $\frac{1}{2}$ inch.....	each	10 00
10, " " $\frac{1}{2}$ " 4 "	"	18 00

Fig. 857

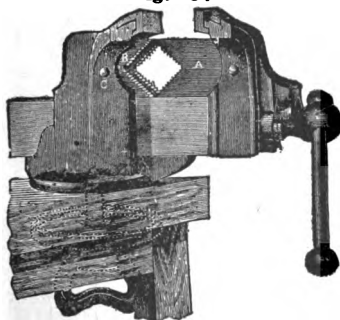
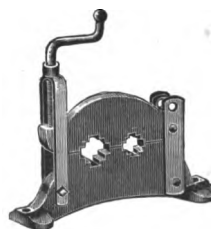
Smith
Combination Vise

Fig. 857, No. 1, holds Pipe $\frac{1}{8}$ to 2 inch.....	each	16 00
Fig. 857, No. 2, holds Pipe $\frac{1}{4}$ to 3 inch.....	each	20 00
Fig. 857, No. 3, holds Pipe $\frac{1}{2}$ to 4 inch.....	each	25 00

Handy Pipe Vise

Fig. 858, Capacity from $\frac{3}{4}$ inch Rod to 2 inch Pipe	each	3 00
---	------	------

Fig. 858



In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

WELL TOOLS AND SUPPLIES

REAMERS FOR TUBULAR WELL PIPE

Fig. 862



Fig. 1036



For Reaming Ends.

For Reaming Through.

Sizes in inches	2 inch	2½ inch	3 inch
Fig. 862	3 00	4 00	6 00
Fig. 1036	3 00	4 00	6 00

Valve Grab for Tubular Wells

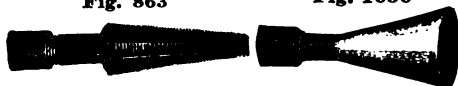
Fig. 868



Taper Tap for Pulling Hollow Rods.

Fig. 863

Fig. 1030



Male.

Female.

Price, to pull 2 inch Valve ...	2 00
3 inch " " " " " " " " " " " "	3 00

Sizes	Fig. 863	Fig. 1030
To pull ¾ inch to 1¼ inch Pipe ...	6 00	12 00
1 " " " " " " " " " " " "	9 00	18 00

Right Hand Threads, unless otherwise ordered.

Fig. 879 Fig. 880

Fig. 871



Straight Drill,
with or without
Leather Valve

Fig. 872



Twist Drill,
with or with-
out Leather
Valve.

Fig. 860



Fig. 1038



Hydraulic Blind Valve

To fit 1 in. Pipe
for 2 in. wells... \$1 00
To fit 1½ in. Pipe
for 3 in. wells... 2 00
To fit 2 in. Pipe
for 4 in. wells... 4 00

Hydraulic Drill Rod Coupling, Fig. 1038

XXX Strength,
3½ in. long,
Price, 50c.

Size of Hole Augers will make, inches.....	2	2½	3	3½	4	4½	5	6
Fig. 879, Chisel Bit Auger, for Clay and Hard Pan.....	5 00	6 00	7 00	9 00	10 00	13 00	15 00	25 00
Fig. 880, Pod Auger, for Boring and Removing Core.....	5 00	6 00	7 00	9 00	10 00	13 00	15 00	25 00
Fig. 871, Straight Drill, with or without Valve.....	3 60	5 00	7 50	9 00	11 50	14 00	16 00	20 00
Fig. 872, Twist Drill, with or without Valve.....	4 50	5 50	6 60	8 50	10 50	12 50	15 00	20 00

Fig. 864 Fig. 898

Fig. 867



Cast Steel
and Mal.

Size, inches...	1¼	1½	2	2½	3	3½	4	4½	5	6
Fig. 864, St'l Drive Head	3 00	4 50	6 00	8 00	10 00	12 00	15 00	.....	18 00	25 00
Fig. 898, Mal. Drive Cap...	60	75	1 25	.....	.....	.....	.....	.....	.....	.....
Fig. 867, Cast S'l Drive Sh.	.....	.....	90	1 50	2 00	3 50	4 00	5 50	6 00	8 00
Fig. 867, Mal. Drive Shoe..	.....	.....	50	70	90	1 15	1 50	.....	.....	.....

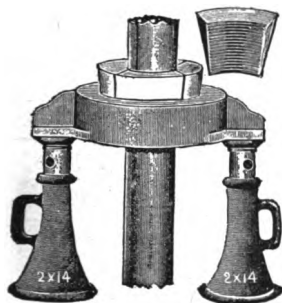
N. B.—Alphabetical Index is in front, and Figure Index in back, of Catalogue.

IMPROVED PIPE PULLERS AND HOLDERS

FIG. 1002

HORSE POWER PIPE PULLER, WITH BALL BEARINGS, FOR PULLING PIPE FROM TUBULAR WELLS

Jack Screw Pipe Puller, Fig. 861



Sizes and Prices, Fig. 861

Sizes			Price
No. 1, to pull 1 and 2 inch Pipe.....	2	3	4 00
" 2, " 2 " 3 " 4 "	3	4	5 00
" 3, " 3 1/2 " 4 "	4	5	15 00
" 4, " 4 1/2 " 5 "	5	6	20 00
" 5, " 4 1/2, 5 " 6 "	6		25 00

N. B.—Fig. 861 is furnished without Jack screws.

Babcock's Pipe Lifter and Holder

Fig. 884

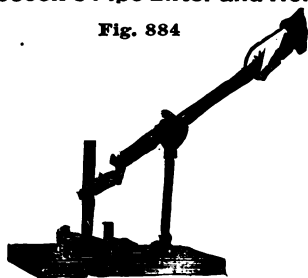
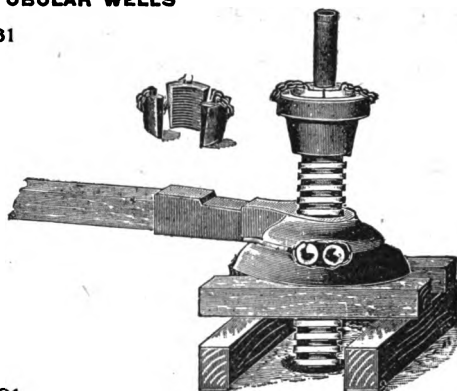


Fig. 884

Price complete, for 1 and 1 1/4 inch Pipe, \$7.00

Fig. 1005



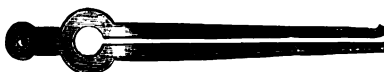
Complete with Dies, Price, Fig. 1002

To pull 2, 2 1/2 and 3 inch Pipe ...	40 00
Extra Dies, per set.....	3 00

Fig. 869, Lifting Tongs



Fig. 870, Sliding Tongs



PRICES FIGS. 869 AND 870

For 3/4 inch Pipe, Fig. 869 or 870.....	5 00
" 1 " " 869 " 870.....	6 00
" 1 1/2 " " 869 " 870.....	7 50
" 1 1/2 " " 869 " 870.....	8 00
" 2 " " 869 " 870.....	10 00

Western Pipe-Lifting Clevis, Fig. 1005

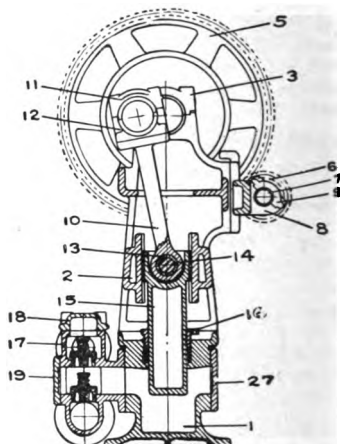
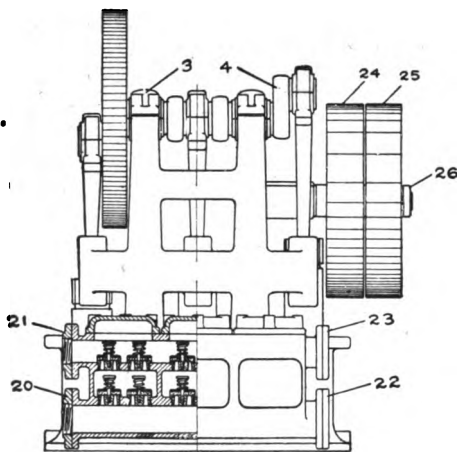
Price complete

For 1 and 1 1/4 inch Pipe..... 2 00

In Telegrams use Cipher Words Designating Pumps—See Code, pages 4 and 5.

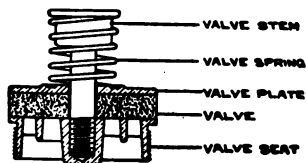
TRIPLEX POWER PUMP REPAIR LIST

In ordering repairs always give the Shop Number of the Pump, which will be found on the Name-plate, together with the Name of the Part, and its Number, as given below. On our Later Patterns a Symbol or Pattern Number is cast on each Part. Give this also. The Construction of our Triplex Pumps varies considerably, so that the Sectional View given below is only Approximate. Hence the above instructions should be followed carefully in ordering repairs.



- | | |
|------------------------------------|-------------------------------|
| 1. Cylinders. | 19. Valve Chamber Side Plate. |
| 2. Guides. | 20. Suction Pipe Flange. |
| 3. Main Bearing Cap. | 21. Discharge Pipe Flange. |
| 4. Crank Shaft. | 22. Suction Blank Flange. |
| 5. Gear. | 23. Discharge Blank Flange. |
| 6. Pinion. | 24. Tight Pulley. |
| 7. Pinion Shaft. | 25. Loose Pulley. |
| 8. Pinion Shaft Bearing. | 26. Collar. |
| 9. Pinion Shaft Bearing Cap. | 27. Cylinder Blank Flange. |
| 10. Connecting Rod. | |
| 11. Connecting Rod Box—Upper Half. | |
| 12. Connecting Rod Box—Lower Half. | |
| 13. Connecting Rod Bushing. | |
| 14. Crosshead Pin. | |
| 15. Plunger. | |
| 16. Stuffing Box Gland. | |
| 17. Valve Chamber | |
| 18. Valve Chamber Top Cover. | |

VALVE DETAILS



Repairs for other Triplex Pumps than shown above and for Deep Well Power Pumps should be ordered by specific description of the parts wanted.

INDEX TO PRICE LIST OF REPAIRS.

Our pumps are made to exact templates and gauges so that repairs will fit. When in doubt as to the proper name of the part, make a sketch and give dimensions and weight. If the number of casting or the Figure and size, or number of pump is not known, be specific in making description.

Repairs for Pumps not in Price List will be quoted on application.

NAME OF PART.	PAGE	NAME OF PART.	PAGE
"ACME" Double-Acting Brass Pump.....	280	"IDEAL" D. A. Oscillating Pumps....	282
Air Chambers for Force Pumps.....	284	Iron Tops of Br. Cyl. Force Pumps.....	289
Air Chamber Nuts.....	288	Irrigating Pumps, Wind Mill.....	278
Anti-Freezing Three-Way Force Pumps.....	277	LEATHERS , Valve and Plunger.....	286
Artesian Well Cylinders, Figs. 311 and 324....	276	Levers or Handles.....	288
Attachments for Wind Mill Pumps.....	284	Links or Movable Fulcrums.....	287
BANNER and Mascot Pumps.....	274	MISCELLANEOUS repairs.....	284-291
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Bilge Pumps.....	277	"PEERLESS" Force Pumps.....	275
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Bolts and Screws.....	285	Piston and Connecting Rods.....	288
Braces for Well and Wind Mill Pumps.....	285	Pitcher Spout Pumps.....	274
Brass Cylinders for Cistern Pumps.....	274	Pitmans for Hand and Power Pumps.....	289
Brass Cylinders for Force Pumps.....	285	Plungers and Parts for Cylinders.....	286
Brass Plungers for Independent Cylinders.....	286	Plungers without Rod.....	289
Brass Stuffing-Box Bowls.....	290	"Premium" Force Pump, Fig. 290.....	275
Brass Tubes for Iron or Lead Pipe.....	285	RAILWAY Gate Pump, Fig. 687.....	281
Brass Valve Seats.....	284	Rods for Set-Length Pumps.....	289
CAPS , Bottom for Bracket Pumps.....	285	Rotary Pumps, Figs. 574 to 578.....	279
Caps for Independent Cylinders.....	286	SCREWS and Bolts.....	285
Caps, Stuffing-Box.....	291	Sections, Iron Top of Br. Cyl. Force Pumps.....	289
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"Climax" Double-Acting Force Pumps.....	280	Shells or Bodies of Cylinders.....	286
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Cross Heads and Links.....	285	Spout and Air Chamber Nuts.....	288
Cylinders or Working Barrels.....	286	Spouts for Hand and Wind Mill Pumps.....	289
Cylinders for Pumps.....	285	Standards or Stocks.....	290
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Discharge Funnels for Force Pumps.....	287	Stuffing-Box Caps and Glands.....	291
"FARMERS" Favorite" Pump.....	275	Syphon Force Pumps.....	276
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Flanges for Suction and Discharge Pipe....	287	"Torrent" Thresher Tank Pump, Fig. 553..	278
Fulcrums or Bearers.....	287	"Triumph" Double-Acting Pumps.....	280, 281
GATE Pump, Railway, Fig. 687.....	281	Tubes, Brass, for Iron or Lead Pipe.....	285
"Giant" Thresher Tank Pump, Fig. 554....	278	Two-Cylinder Brass House Force Pump....	281
Gland Nuts for Stuffing-Box Caps.....	291	VALVE Seats, Brass.....	284
Guides for Piston Rods.....	288	WIND Mill Pump Attachments.....	284
HAND and Power Piston Pumps.....	279	Wind Mill Pump Rods.....	288
Handles or Levers.....	288	Working Heads, Figs. 434 and 439.....	277
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Hydraerams, Fig. 695.....	282		

Pumps in Repair List, but not Illustrated, are Found in Former Catalogue.

PRICE LISTS OF REPAIRS FOR DEMING PUMPS

Figs. 117, 120, 121, 122, 123, 124 and 127

CISTERN PUMPS

Number	0	1	2	3	4	5	6	8
Cylinder, Iron	1 50	1 50	1 65	1 75	2 00	2 25	2 50	3 50
Cylinder, Brass	4 00	5 00	6 00	7 50	9 00	10 00	12 00	.....
Iron Top Section for Brass Cylinder	85	1 00	1 15	1 25	1 50	1 75	2 25	.....
Base	75	75	75	85	1 00	1 25	1 50	1 75
Bearer	60	60	60	65	70	75	85	1 00
Lever	40	40	40	50	60	70	75	1 00
Plunger, except Fig. 122	50	55	60	65	70	75	80	1 00
Plunger, Fig. 122, Iron .....	.....	75	80	90	1 00	1 15	1 25	.....
Plunger, Fig. 122, Brass .....	.....	2 25	2 50	2 75	3 00	3 50	4 00	.....
Plunger Rod	10	10	10	10	10	10	10	10
Bottom Flange for Bracket Pumps	25	25	25	25	35	35	50	75
Brass Tube Valve Seat threaded for Iron Pipe, for Fig. 124	75	75	85	95	1 15	1 35	1 50	2 00
Brass Tubes for Iron Pipe, for Fig. 120, etc.	55	55	65	65	80	80	1 25	2 00
Brass Tube for Lead Pipe	30	30	35	35	50	50	1 00	1 50
Base Nut	25	25	35	35	50	50	60	80
Lead Pipe Nut	25	25	25	25	35	35	50	60

Figs. 125, 126, 129, 130, 135 and 136

PITCHER SPOUT PUMPS

Number	1	2	3	4	5	6
Cylinder, Fig. 129, Iron	1 35	1 50	1 65	1 85	.....	.....
Cylinder, Fig. 129, Brass Lined	2 00	2 50	3 00	3 75	.....	.....
Cylinders, Figs. 135 and 136, Porcelain Lined	1 75	2 15	2 75	3 25	4 00	7 50
Cylinders, Figs. 125 " 126, Brass Lined	1 75	2 15	2 75	3 25	4 00	7 50
Cylinders, Figs. 125 " 126, Brass	4 00	5 00	6 00	7 00	.....	.....
Cylinders, Figs. 125 " 126, Iron	1 00	1 15	1 30	1 50	1 75	3 50
Iron Top Section, Figs. 125 and 126, B. C.	75	1 00	1 25	2 00	.....	.....
Bearer	40	40	50	50	75	1 25
Lever	40	40	50	50	60	75
Base	65	75	85	1 00	1 25	3 00
Base Nut	25	25	25	35	50	60
Lead Pipe Tube	80	35	35	50	1 00	1 50
Plunger and Rod	65	70	80	95	1 60	2 60

Figs. 181 and 182

"BANNER" AND "MASCOT" PUMPS

DESCRIPTION OF PART	FIG. 181	FIG. 182
Air Chamber	1 75	1 25
Bearer	1 00	75
Lever	1 00	75
Base	1 25	1 00
Brace Ring	25	20
Rod Complete	60	60
Malleable Eye for Rod	15	15

Repairs for Pumps not in Price List will be Quoted on Application.

Figs. 280, 281, 282, 283, 450, 451, 452 and 453
"PEERLESS" DOUBLE-ACTING FORCE PUMPS

Figs.....	280 & 281			450 & 451			282		452		283		453	
Number.....	2	4	6	2	4	6	2	4	2	4	2	4	2	4
Stock, right or left half, each.....	2 00	2 00	2 00	2 25	2 25	2 25	2 00	2 00	2 25	2 25	2 00	2 00	2 25	2 25
Lever.....	1 25	1 25	1 25	1 50	1 50	1 50	1 25	1 25	1 50	1 50	1 25	1 25	1 50	1 50
Spout.....	60	60	80	60	60	80	60	60	60	60	60	60	1 25	1 25
Spout Nut.....	25	25	35	25	25	35	25	25	25	25	25	25	25	25
Hose Tube.....	15	15	25	15	15	25	15	15	15	15	15	25	25	25
Union Coupling, for Spout.....	35	35	40	35	35	40	35	35	35	35	.....	.....	.....	.....
Head or Cylinder Casting, Iron.....	1 00	.....	1 25	1 00	.....	1 25	.....	.....	.....	.....	1 00	1 25	1 00	1 25
Head or Cylinder Casting, Malleable.....	.....	1 75	.....	.....	1 75	.....	.....	.....	.....	.....	.....	.....	.....	.....
Differential Tube.....	2 50	2 75	3 00	2 50	2 75	3 00	.....	.....	.....	.....	2 50	2 75	2 50	2 75
Differential Plunger.....	75	85	1 00	75	85	1 00	75	85	75	85	75	85	75	85
Plunger Rod.....	1 15	1 15	1 15	.....	.....	.....	1 00	1 00	1 15	1 15	1 25	1 25	.....	.....
Eye for Plunger Rod.....	15	15	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cap for Air Chamber Pipe.....	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Steel Pins, each.....	15	15	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Deep Well Attachments.....	1 00	1 00	1 00	1 00	1 00	1 00	.....	.....	.....	.....	.....	.....	.....	.....
Lever Link.....	.....	.....	.....	40	40	40	.....	.....	40	40	.....	.....	40	40
Upper Plunger Rod.....	.....	.....	.....	75	75	75	.....	.....	.....	.....	.....	.....	75	75
Lower Plunger Rod.....	.....	.....	.....	25	25	25	.....	.....	.....	.....	.....	.....	25	25
Top Cap of Differential Cylinder.....	.....	.....	.....	.....	.....	.....	1 50	2 00	1 50	2 00	.....	.....	.....	.....
Bottom Cap of Differential Cylinder.....	.....	.....	.....	.....	.....	.....	1 00	1 50	1 00	1 50	.....	.....	.....	.....
Outside Shell of Differential Cylindr.....	.....	.....	.....	.....	.....	.....	75	1 50	75	1 50	.....	.....	.....	.....
Inside Shell of Differential Cylinder.....	.....	.....	.....	.....	.....	.....	1 25	1 50	1 25	1 50	.....	.....	.....	.....
Stuffing Box Gland.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	50	50	50	50
Brass Hydrant Screw.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 50	1 50	1 50	1 50
Hand Wheel.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20	20	20	20
Three-way Casting.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 00	1 00	1 00	1 00
Pipe Sleeve, Rod Guide.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	75	75	75	75
Pipe Sleeve, Lock Nut.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20	20	20	20
Brass Ell for Bottom Discharge.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 00	1 00	1 00	1 00
Union Nut for Brass Ell.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	35	35	35	35
Reducer for Head or Cyl. Casting.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40	50	40	50
Hydrant Rod.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 00	1 00	1 00	1 00
Brass Disk for Three-way Valve.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	80	30	30	30
Rubber Gaskets for Three-way Valve, each.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20	20	20	20

Fig. 285**FARMERS' FAVORITE PUMP**

Air Chamber.....	4 00	Clamp Ring.....	1 15
Top Cap.....	1 00	Steel Coupling to Connect Cylinder to Pump.....	2 50
Bearer.....	1 00	Brass Lined Cylinder Shell.....	7 00
Cross Head for Rod.....	25	Bottom Cap for Cylinder.....	1 75
Steel Pin for Cross Head.....	15	Drop Valve.....	2 00
Rod Links, each.....	35	Plunger.....	2 25
Lever Links, each.....	50	Stuffing Box Gland.....	50
Wood Handle.....	40	Rod complete.....	1 50
Handle Ball.....	80		
Base.....	1 50		

Fig. 290**"PREMIUM" PUMP**

Air Chamber.....	2 00	Brace Ring.....	25
Bearer.....	50	Wood Lever.....	50
Rod Links, each.....	20	Handle Ball.....	50
Lever Links, each.....	25	Stuffing Box Gland.....	80
Cross Head.....	20	Steel Pin.....	15
Base.....	1 00	Rod Complete.....	75

Pumps in Repair List, but not Illustrated, are Found in Former Catalogue.

Fig. 311
ARTESIAN WELL BRASS CYLINDER

Size.....	1 3/4	1 3/4	2 1/4	2 3/4	3 1/4
Top Attachment.....	1 75	2 00	3 00	3 75	4 25
Bottom Attachment.....	2 50	3 00	4 25	5 00	6 00
Cage for Plunger.....	85	1 25	1 50	2 00	4 00
Plunger Stock.....	85	1 00	1 75	2 00	5 00
Bottom Nut of Plunger.....	50	75	90	1 50	2 25
Cage for Lower Valve.....	85	1 00	1 50	2 00	4 00
Valve Stock.....	1 00	1 50	2 50	3 50	4 50
Brass Ball Valves, each.....	60	75	1 25	2 00	3 00
Plunger, complete.....	3 00	4 00	6 50	9 00	13 50
Lower Valve, complete.....	2 50	3 50	6 00	8 00	12 50

Prices of Cylinder Shells furnished on application.

Fig. 324 ARTESIAN WELL BRASS CYLINDER

Size.....	1 3/4	1 3/4	2 1/4	2 3/4	3 1/4	3 3/4	4 1/4	4 3/4	5 1/4	5 3/4	6 1/4	6 3/4
Top Attachment.....	1 75	2 00	3 00	3 75	4 25	4 75	5 25	7 00	7 50	8 50	10 00	12 00
Bottom Attachment.....	2 50	3 00	4 25	5 00	6 00	7 25	8 00	10 00	11 50	13 00	15 00	17 00
Cage for Plunger.....	1 00	1 25	1 50	3 50	5 00	6 50	8 00	11 00	12 50	15 00	20 00	24 00
Plunger Stock.....	1 00	1 75	3 00	4 50	6 00	7 50	9 00	11 50	14 00	16 00	21 00	28 00
Plunger Rings, each.....	25	35	75	1 00	1 25	1 50	1 75	2 25	2 50	3 00	3 75	4 50
Bottom Nut of Plunger.....	50	75	1 00	2 25	3 00	3 75	4 50	5 75	6 50	7 25	8 00	8 50
Cage for Lower Valve.....	1 00	1 25	1 50	3 50	5 00	6 50	8 00	11 00	12 50	15 00	20 00	24 00
Valve Stock.....	1 00	1 50	2 50	4 00	5 25	6 00	7 00	9 50	10 50	13 75	16 00	20 00
Brass Ball Valves, each.....	60	75	1 25	2 50	3 50	4 50	25 00	9 00	10 50	14 00	20 00	25 00

Prices of Cylinder Shells furnished on application.

Figs. 385 and 386

IMPROVED SYPHON FORCE PUMPS

Size.....	2 1/2x8	3x8	3 1/2x10	4x10	2 1/2x12	3x12	3 1/2x12
Bearer, Fig. 386.....	2 00	2 00	2 50	2 50	3 00	3 00	3 00
Bearer Link, Fig. 386.....	50	50	75	75	1 00	1 00	1 00
Lever, Fig. 386.....	1 50	1 50	1 75	1 75	1 75	1 75	1 75
Flat Rod, Fig. 386.....	60	60	60	60	60	60	60
Stuffing Box Cap, Fig. 385.....	2 00	2 00	2 50	2 50	2 00	2 00	2 50
Stuffing Box Cap, Fig. 386.....	2 50	2 50	3 00	3 00	2 50	2 50	3 00
Stuffing Box Gland.....	1 25	1 25	1 25	1 25	1 25	1 25	1 25
Air Chamber.....	6 00	6 00	10 00	10 00	6 00	6 00	10 00
Discharge Funnel.....	1 00	1 00	1 75	1 75	1 00	1 00	1 75
Nut for Discharge Funnel.....	50	50	60	60	50	50	60
Brass Discharge Tube.....	1 00	1 00	1 50	1 50	1 00	1 00	1 50
Case or Outside Cylinder.....	7 00	7 00	10 00	11 00	8 00	8 00	12 00
Hand Hole Plate.....	75	75	1 00	1 00	75	75	1 00
Suction Flange.....	50	50	75	75	50	50	75
Top Ring for Cylinder.....	1 00	1 00	1 75	1 75	1 00	1 00	1 75
Inside Cylinder, Shell only.....	5 00	5 75	7 00	8 50	6 50	7 50	8 00
Brass Lower Cap for Inside Cylinder.....	2 00	2 25	3 50	4 00	2 00	2 25	3 50
Brass Plunger.....	1 75	2 25	2 75	4 00	1 75	2 25	2 75
Brass Plunger Rod.....	3 25	3 25	4 50	4 50	3 50	3 50	5 00
Malleable Fork for Rod.....	75	75	1 00	1 00	75	75	1 00

Size.....	4x12	5x12	6x12	3 1/2x14	4x14	5x16	6x16
Bearer Fig. 386.....	3 00	3 50	3 50	.....	.....	.....	.....
Bearer Link Fig. 386.....	1 00	1 00	1 00	.....	.....	.....	.....
Lever Fig. 386.....	1 75	2 00	2 00	.....	.....	.....	.....
Flat Rod Fig. 386.....	60	60	60	.....	.....	.....	.....
Stuffing Box Cap, Fig. 385.....	2 50	3 50	3 50	2 50	2 50	3 50	3 50
Stuffing Box Cap, Fig. 386.....	3 00	4 75	4 75	.....	.....	.....	.....
Stuffing Box Gland.....	1 25	1 50	1 50	1 25	1 25	1 50	1 50
Air Chamber.....	10 00	16 00	16 00	10 00	10 00	16 00	16 00
Discharge Funnel.....	1 75	2 50	2 50	1 75	1 75	2 50	2 50
Nut for Discharge Funnel.....	60	80	1 00	60	60	80	1 00
Brass Discharge Tube.....	1 50	2 50	2 75	1 50	1 50	2 50	2 75
Case or Outside Cylinder.....	13 00	15 00	16 50	13 00	14 00	17 00	18 50
Hand Hole Plate.....	1 00	1 25	1 25	1 00	1 00	1 25	1 25
Suction Flange.....	75	1 00	1 00	75	75	1 00	1 00
Top Ring for Cylinder.....	1 75	2 50	2 50	1 75	1 75	2 50	2 50
Inside Cylinder Shell only.....	10 00	18 00	23 00	9 50	11 00	23 00	32 00
Brass Lower Cap for Inside Cylinder.....	4 00	6 00	7 00	3 50	4 00	6 00	7 00
Brass Plunger.....	4 00	7 00	10 00	2 75	4 00	7 00	10 00
Brass Plunger Rod.....	5 00	8 00	8 00	5 00	5 00	9 00	9 00
Malleable Fork for Rod.....	1 00	1 50	1 50	1 00	1 00	1 50	1 50

Repairs for Pumps not in Price List will be Quoted on Application.

Figs. 410, 412, 415, 416 and 425**ANTI-FREEZING THREE-WAY WIND MILL FORCE PUMPS**

Standard Complete, with Flat Rod and Lever.		Platform Guide Plate.....	0 40
6 inch Stroke.....	8 00	Hydrant Spout, with Stuffing-box (no Wheel or Screw).....	2 85
10 inch Stroke.....	9 50	Hydrant Spout, without Stuffing-box.....	2 00
Adjustable Stroke.....	10 00	Hydrant Stuffing-box Gland.....	85
Bottom Section Complete, with Hydrant Top.....	10 00	Hydrant Hand Wheel.....	40
Standard only, without Top.....	3 00	Brass Valve Screw in Hydrant Top.....	1 50
Standard Top only (Rod Guide).....		Bottom Section only (without Stuffing-box Pipes, Union or Flange).....	3 00
6 inch Stroke.....	2 00	Pipe Sleeve (Valve Rod Guide).....	1 00
10 inch Stroke.....	3 00	Pipe Sleeve Lock Nut.....	30
Adjustable Stroke.....	3 50	Stuffing-box Cap (Bottom Section).....	1 00
Flat Rod.....	1 00	Stuffing-box Gland.....	85
Lever, 6 inch Stroke.....	1 50	Brass Cased Rod.....	1 00
Lever, 10 inch Stroke.....	1 75	Rubber Gaskets for Two-way Valve, each.....	30
Lever or Bearer Link, 6 inch Stroke.....	50	Disk for Two-way Valve.....	50
Lever or Bearer Link, 10 inch Stroke.....	75	Brass Elbow only (Bottom Discharge)...	1 00
Brace.....	50	Union Nut for Brass Elbow.....	35
Platform Base only.....	2 50	Pipe Flange.....	1 00
Bottom Section, complete with Stuffing-box Cap, Gland, Brass-cased Rod, Pipe Sleeve, Pipe Flange and Union Nut for Elbow.....			8 00

Fig. 434**IMPROVED DEEP WELL WORKING HEAD**

Head or Main Casting.....	4 00	Wind Mill Connection.....	0 75
Stuffing Box Cap.....	1 50	Piston Rod, 10 inch.....	85
Stuffing Box Gland.....	1 50	Piston Rod, 16 inch.....	1 00
Cross Head.....	1 75	Guide Rods, 10 inch, each.....	1 15
Air Chamber.....	2 50	Guide Rods, 16 inch, each.....	1 40
Bottom Flange.....	3 00		

Fig. 439**IMPROVED DEEP WELL WORKING HEAD**

Head or Main Casting.....	6 50	Piston Rod, 16 inch Stroke.....	1 00
Stuffing-box Cap.....	1 50	Piston Rod, 24 inch Stroke.....	1 25
Stuffing-box Gland.....	1 25	Piston Rod, 30 inch Stroke.....	1 50
Suction Flange.....	2 00	Rod Guides, 16 inch Stroke, each.....	1 50
Discharge Flange.....	1 25	Rod Guides, 24 inch Stroke, each.....	1 75
Cross Head.....	2 00	Rod Guides, 30 inch Stroke, each.....	2 00
Wind Mill Connection.....	75		

Figs. 470 and 471**THE "MARINE" BILGE PUMPS**

Number.....	FIG. 470		FIG. 471	
	2	4	2	4
DESCRIPTION OF PART				
Cylinder.....	10 00	15 00	10 00	15 00
Base.....	4 00	8 00	6 00	10 00
Plunger, complete.....	3 00	5 00	3 00	5 00
Flange.....	1 00	1 50	1 00	1 50
Valve for Base.....	1 00	1 50	1 00	1 50
Valve for Plunger.....	1 00	1 50	1 00	1 50
Lever Sockets.....	1 50	2 00	1 50	2 00
Lever.....	3 00	4 00	3 00	4 00
Pin for Bearer.....	40	50	40	50
Pin for Plunger.....	30	40	30	40

Pumps in Repair List, but not Illustrated, are Found in Former Catalogue.

Figs. 475 and 476
THE "MARINE" IRRIGATING WIND MILL LIFT PUMPS

Number.....	2	4	Number.....	2	4
Cylinder.....	10 00	14 00	Plunger Complete.....	4 00	6 25
Top Plate.....	1 25	2 00	Plunger Valve.....	1 00	1 50
Base.....	5 00	6 50	Plunger Rod.....	30	75
Suction Valve.....	1 00	1 50	Malleable Fork.....	1 00	1 50
Suction Flange.....	85	1 15			

Fig. 548
"NEW YORK" BRASS LIFT AND FORCE PUMP

Frame.....	1 25	Discharge Nut.....	40
Bearer.....	1 00	Discharge Tube.....	25
Lever.....	50	Cross Head.....	75
Cylinder.....	4 00	Upper part of Plunger Rod.....	60
Stuffing-box Cap.....	1 00	Lower part of Plunger Rod.....	75
Stuffing-box Gland.....	25	Plunger.....	1 00
Lower Cap.....	75	Lower Valve.....	25
Lower Valve Seat.....	60		

Fig. 553
"TORRENT" THRESHER TANK PUMP

Cylinder.....	5 00	Air Chamber Ring Packing.....	0 75
Base.....	3 00	Coupling Nut for Suction.....	60
Air Chamber.....	3 00	Closed Nut for Spout.....	45
Lever Socket.....	75	Spout Nut for Discharge.....	45
Rocker Arm.....	75	Stuffing-Box Nut.....	35
Rocker Arm Links, each.....	20	Hose Tube for Suction.....	35
Plungers, each.....	1 50	Hose Tube for Discharge.....	15
Rocker Shaft.....	1 50	Brass Thumb Screw.....	30
Lower Valve Complete.....	1 50	Wood Lever.....	50
Lower Valve Leather.....	1 25		

Fig. 554
"GIANT" DOUBLE-ACTING THRESHER TANK PUMP

Cylinder.....	9 00	Plunger.....	2 25
Air Chamber for Fig. 555.....	2 50	Discharge Goose Neck.....	75
Front Head.....	1 25	Coupling Nut for Goose neck.....	60
Rear Head.....	1 00	Coupling Nut for Sction.....	60
Link.....	50	Hose Nut and Tube for Discharge.....	50
Wood Lever.....	50	Hose Tube for Suction.....	35
Lever Socket.....	75	Piston Rod Complete.....	75
Check Valve Caps, each.....	25	Brass Stuffing Box Gland.....	50
Valves, each.....	15		

Figs. 567 and 567
HAND BOILER FEED PUMPS

Cylinder.....	3 00	Plunger Rod.....	75
Top Cap.....	50	Knuckle Joint for Plunger Rod.....	25
Brass Gland or Bowl.....	1 00	Malleable Link.....	20
Fulcrum.....	75	Base for Fig. 567.....	1 00
Lever.....	75	Bottom Cap for Fig. 567.....	75
Iron Plunger.....	50	Metallic Lower Valve.....	1 00
Metallic Plunger.....	2 00		

Figs. 569 and 566
DEEP WELL FORCE PUMP STANDARDS

DESCRIPTION OF PART	FIG. 569	FIG. 566	DESCRIPTION OF PART	FIG. 569	FIG. 566
Stock.....	15 00	12 00	Pulleys, each.....	7 50	15 00
Shaft Caps, each.....	1 50	1 50	Fly-Wheels.....		3 00
Base.....	6 00	6 00	Handle for Fly-Wheel.....		2 00
Crank Gear.....	12 00	9 00	Wrist Pin.....	2 00	2 00
Pinion.....	10 00	8 00	Pitman.....	15 00	15 00
Face Plate and Shaft.....			Piston Rod.....	3 00	3 00
Crank Shaft.....	2 00	2 00	Rod Guide.....	2 00	2 00
Pinion Shaft.....	4 00	3 00	Stuffing-box Cap.....	1 25	1 25
Air Chamber.....	4 00		Stuffing-box Gland.....	1 00	1 00
Cock Spout.....	2 50	2 50	Brass Cross Head for Piston Rod.....	3 00	3 00
Plain Spout.....		1 50			

Repairs for Pumps not in Price List will be Quoted on Application.

Figs. 574, 575, 576 and 578**HAND ROTARY FORCE PUMPS**

Number.....	1	2	3	4	5	6
Case only.....	4 50	5 00	6 00	9 00	10 00	12 00
Lid only.....	2 25	2 50	3 00	4 50	5 00	6 00
Cam with Short Shaft.....	3 50	4 00	4 50	6 00	6 50	8 00
Cam with Long Shaft.....	3 50	4 00	4 50	7 00	8 50	10 00
Spout and Cap.....	1 00	1 00	1 50	2 00	2 50	3 00
Packing Nut.....	25	25	25	35	35	35
Cap Nuts, each.....	25	25	25	35	35	35
Drip Screw.....	25	25	25	25	25	25
Priming Screw.....	20	20	20	20	20	20
Metallic Valve.....	1 00	1 00	1 25	1 50	1 75	2 00
Base.....	2 00	2 00	2 50	4 00	5 00	6 50
Base, Fig. 578.....	2 50	2 50	2 75	3 50	4 00	.....
Fly Wheel, Fig. 575.....	4 00	4 00	4 00	5 00	5 00	5 00
Fly Wheel, Fig. 574.....	2 00	2 00	2 00	.....	.....	.....
Fly Wheel, Fig. 578.....	2 00	2 00	2 00	3 50	3 50	.....
Suction Nut, Fig. 576.....	50	50	50	.....	.....	.....
Goose Neck, Fig. 576.....	20	20	25	.....	.....	.....
Barrel Attachments, Fig. 576.....	75	75	1 00	.....	.....	.....
Crank, Fig. 576.....	50	50	50	.....	.....	.....

Fig. 577**POWER ROTARY FORCE PUMP**

Number.....	1	2	3	4	5	6
Case only.....	4 50	5 00	6 00	9 00	10 00	12 00
Lid only.....	2 25	2 50	3 00	4 50	5 00	6 00
Cam with Short Shaft.....	3 50	4 00	4 50	6 00	6 50	8 00
Cam with Long Shaft.....	5 00	5 50	6 00	7 50	8 00	12 00
Spout and Cap.....	1 00	1 00	1 50	2 00	2 50	3 00
Small Base.....	1 50	1 75	1 75	.....	.....	.....
Valve Seat.....	.....	.....	.....	1 50	1 50	2 00
Bed Plate.....	4 00	4 50	5 00	7 00	8 00	10 00
Outside Bearing.....	1 00	1 25	1 25	2 00	5 00	6 00
Pulleys, each.....	2 00	2 50	3 00	4 00	4 00	5 00
Metallic Valve.....	1 00	1 00	1 25	1 50	1 75	2 00
Packing Nut.....	25	25	25	35	35	35
Cap Nuts, each.....	25	25	25	35	35	35
Brass Drip Screw.....	25	25	25	25	25	25
Brass Priming Screw.....	20	20	20	20	20	20

Figs. 585, 590 and 591**HAND AND POWER PISTON PUMPS**

DESCRIPTION OF PART	FIG. 585		FIG. 590		FIG. 591	
	No. 4	No. 5	No. 4	No. 5	No. 4	No. 5
Base.....	2 50	2 50	2 50	2 50	2 50	2 50
Cylinder.....	4 00	4 50	4 00	4 50	4 00	4 50
Crank Case.....	4 00	4 00	4 00	4 00	6 00	6 00
Outside Lid.....	1 00	1 00	1 00	1 00	2 50	2 50
Stuffing-Box Lid.....	2 00	2 00	2 00	2 00	.....	.....
Stuffing-Box Nut.....	50	50	50	50	.....	.....
Stuffing-Box Gland.....	75	75	75	75	1 25	1 25
Air Chamber.....	2 00	2 00	2 00	2 00	2 00	2 00
Pipe Flange.....	1 00	1 00	1 00	1 00	1 00	1 00
Plunger.....	4 00	4 50	4 00	4 50	4 00	4 50
Shaft.....	3 00	3 00	4 00	4 00	4 00	4 00
Pitman.....	1 00	1 00	1 00	1 00	2 00	2 00
Pulleys, each.....	4 00	4 00	4 00	4 00	5 50	5 50
Lower Valve.....	50	60	50	60	50	60
Plunger Follower for Deep Well.....	1 25	1 50	1 25	1 50	1 25	1 50

Pumps in Repair List, but not Illustrated, are Found in Former Catalogue.

Figs. 601, 602, 603, 605 and 613

"TRIUMPH" HORIZONTAL DOUBLE-ACTING FORCE PUMPS

	No. 1	No. 2	No. 3	No. 4	No. 5
Cylinder, with Valve Seats and Bushings.....	11 00	11 00	11 00	17 00	18 00
Base, with Valve Seats.....	4 00	4 00	4 00	7 50	9 00
Air Chamber.....	2 50	2 50	2 50	4 00	5 00
Piston-rod for Figs. 601, 602 and 606.....	2 50	2 50	2 50	4 50	5 00
Piston-rod for Figs. 603, 605 and 613.....	3 50	3 50	3 50	5 50	6 00
Pitman, with Strap and Box, for Fig. 613.....			15 00	15 00	15 00
Pitman for Figs. 603 and 605.....	4 00	4 00	4 00	5 00	5 00
Rod Guide for Figs. 603, 605 and 613.....	1 50	1 50	1 50	2 00	2 00
Piston, with Leathers.....	2 00	2 00	2 00	3 50	4 00
Front Cylinder Head.....	1 00	1 00	1 00	2 50	4 00
Back Cylinder Head.....	90	90	90	2 00	3 75
Stuffing-box Cap (Brass).....	75	75	1 00	1 25	1 25
Stuffing-box Gland.....	40	40	40	75	85
Valves (Brass).....	50	50	50	80	1 00
Leather Valves, each.....	1 25	1 25			
Lever Socket.....	75	75	75	1 25	1 25
Malleable Iron Lever and Wood Handle.....	2 50	2 50	2 50	3 00	3 00
Link.....	25	25	25	35	35
Suction Hose, Half Coupling.....	90	90	1 10	1 75	2 50
Discharge Hose, Half Coupling.....	75	75	90	1 10	1 75
Long Bolt for Link.....	25	25	25	30	40
Lever Bolts, each.....	15	15	15	20	20
Crimped Leather Packings, each.....	30	30	40	60	70
Brass Bushings for Suction and Discharge.....	1 00	1 00	1 00	1 25	1 50
Iron Pipe Nuts.....	50	50	50	60	75
Lead Pipe Elbows and Unions, each.....	1 25	1 50	1 50		
Brass Thumb Screws, each.....	25	25	25	35	35

Fig. 607

"ACME" DOUBLE-ACTING BRASS FORCE PUMP

Number.....	1	2	Number.....	1	2
Cylinder.....	12 00	14 00	Suction Tube.....	65	80
Discharge Valve and Seats, each.....	75	1 00	Discharge Nut.....	60	60
Air Chamber.....	9 00	12 00	Discharge Tube.....	55	65
Suction Valve Seat.....	3 50	4 00	Cap Nut for Air Chamber.....	80	80
Valves, each.....	50	50	Stuffing Box Gland.....	50	50
Stuffing Box Head.....	2 50	3 50	Drain Tube for Base.....	20	20
Rear Head.....	2 00	3 00	Base.....	1 25	1 50
Piston Rod.....	3 50	3 50	Lever.....	1 75	1 75
Piston.....	1 50	2 00	Lever Link.....	25	25
Suction Nut.....	60	60	Lever Socket.....	50	50

Fig. 608

"CLIMAX" DOUBLE-ACTING FORCE PUMP

Number.....	1	2	Number.....	1	2
Cylinder.....	4 00	5 00	Lever.....	1 75	1 75
Lower Valve Seat.....	1 50	1 50	Lever Socket.....	50	50
Front Head.....	1 00	1 00	Link.....	25	25
Rear Head.....	75	75	Brass Valves, each.....	40	40
Base.....	1 50	1 50	Suction Nut and Tube.....	1 00	1 00
Air Chamber.....	1 50	1 50	Discharge Nut and Tube.....	90	1 00
Plunger.....	1 00	1 00	Stuffing-Box Gland.....	40	40
Piston Rod.....	3 00	3 00			

N. B.—New style Climax Pump has bolted cylinder heads. This point distinguishes it from the old style, which has screwed cylinder heads. State which "style" in ordering repairs.

Repairs for Pumps not in Price List will be Quoted on Application.

Fig. 609**"TRIUMPH," HORIZONTAL DOUBLE-ACTING POWER FORCE PUMP**

Number	1	2	3	4
DESCRIPTION OF PART				
Bed Plate with Shaft Caps.....	16 00	16 00	16 00	18 00
Cylinder with Valve Seats and Bushings	11 00	11 00	12 00	17 00
Base with Valve Seats.....	3 00	3 00	4 00	6 00
Air Chamber.....	2 50	2 50	2 50	4 00
Piston Rod.....	3 00	3 00	3 00	4 50
Piston with Leathers.....	2 00	2 00	2 00	3 50
Front Cylinder Head.....	1 50	1 50	1 50	3 00
Back Cylinder Head.....	1 00	1 00	1 00	2 00
Stuffing-box Cap (Brass).....	75	75	1 00	1 25
Stuffing-box Gland.....	40	40	40	75
Valves, Brass, each.....	50	50	50	80
Crank Shaft.....	5 00	5 00	5 00	7 00
Yoke.....	5 00	5 00	5 00	5 00
Gear Wheel.....	5 00	5 00	5 00	5 00
Pinion.....	1 25	1 25	1 25	1 25
Pulleys, each.....	5 00	5 00	5 00	5 00
Pitman.....	2 50	2 50	2 50	3 50
Suction Hose, Half-Coupling.....	90	90	1 10	1 75
Discharge Hose, Half-Coupling.....	75	75	90	1 10

Fig. 612**TWO-CYLINDER BRASS HOUSE FORCE PUMP**

Number	1	2	3
Fulcrum.....	10 00	12 50	15 00
Discharge Funnel.....	1 00	1 75	2 25
Coupling Nut for Discharge Funnel.....	75	1 00	1 25
Stuffing Box Glands, each.....	50	50	50
Walking Beam.....	1 00	1 00	1 00
Fulcrum Links, each.....	20	20	20
Knuckle Joint on Piston Rod.....	25	25	25
Lever Complete.....	3 00	3 00	3 00
Base.....	1 25	1 25	1 50
Brass Seat.....	3 00	4 50	5 00
Brass Suction Ell.....	1 50	1 50	1 75
Suction Nut.....	50	50	75
Suction Tube.....	60	60	75
Brass Tube Cylinders, each.....	1 75	2 25	2 75
Piston Rods, each.....	60	60	60
Plungers, each.....	1 50	1 75	2 25

Fig. 687**RAILWAY GATE PUMP**

Cylinder	18 00
Valve Case.....	5 50
Valve Cap.....	1 00
Suction Valve.....	1 25
Discharge Valve.....	1 50
Bearer.....	4 00
Links, each.....	1 00
Cross Head	75
Brake	1 00
Piston Rod.....	1 00
Plunger Irons, each.....	85

Pumps in Repair List, but not Illustrated, are Found in Former Catalogue.

Fig. 690

IMPROVED HYDRAULIC RAM

Number	2	3	4	5	6	7	8
Brass Impetus Valve and Case, complete	6 00	8 00	10 00	12 00	20 00	32 00	43 00
Brass Impetus Valve only	1 00	1 75	2 25	3 00	5 00	15 00	22 00
Brass Nut on end of Valve	30	30	35	40	50	60	75
Brass Adjusting Nut	50	50	60	75	1 00	2 50	3 00
Brass Lock Nut	20	20	30	35	50	75	1 00
Base	3 00	3 75	4 50	7 00	18 50	18 00	50 00
Air Chamber	3 00	3 75	4 50	8 00	15 00	20 00	50 00
Discharge Cap Nut	25	25	25	35	50	2 00	.....
Discharge Coupling Nut	25	25	25	35	50	1 50	.....
Discharge Tube	50	50	50	55	65	1 25	.....
Drive Coupling Nut	25	25	35	50	75	.....	.....
Drive Tube	50	55	80	1 00	2 00	.....	.....
Brass Screws, each	20	20	20	20	35	.....	.....
Inside Valve Complete	18	20	25	25	50	3 00	4 00
Iron Impetus Valve Case	.....	.....	.....	.....	.....	10 00	12 00
Cap for Impetus Valve Case	.....	.....	.....	.....	.....	7 00	9 00
Water Chamber	.....	.....	.....	.....	.....	8 00	10 00
Large Rubber Washer for Impetus Valve	.....	.....	.....	.....	.....	3 50	5 00
Small Rubber Washer for Impetus Valve	.....	.....	.....	.....	.....	35	5 00
Drive Flange	.....	.....	.....	.....	.....	1 75	8 00
Discharge Flange	.....	.....	.....	.....	.....	.....	2 00
Blank Flange	.....	.....	.....	.....	.....	.....	1 25

Fig. 695

THE DEMING HYDRAERAM

Number	11	12	13	14	16
Air Chamber	8 25	12 50	19 25	29 00	172 50
Impetus Valve, complete, fitted	7 50	9 00	12 00	18 00	100 00
Discharge Coupling Nut, or Flange	25	25	35	50	1 50
Drive Pipe Coupling Nut, or Flange	25	35	50	75	2 50
Discharge Pipe Tube	50	50	75	1 00	.....
Drive Pipe Tube	75	1 00	1 25	.....	.....
Discharge Tight Cap, or Flange	25	25	35	50	1 50
Discharge Valves	1 00	1 25	1 50	2 00	3 50
Impetus Valve Cap with Seat	2 50	3 00	3 50	6 00	45 00
Impetus Valve Arm	75	75	1 00	1 50	11 00
Impetus Valve Seat and Ring	25	50	75	1 25	17 50
Impetus Valve and Stem	1 50	1 50	2 75	4 00	25 00
Impetus Valve Stroke Adjusting Nut	1 00	1 00	1 50	2 00	14 00
Impetus Valve Locking Screw	50	50	50	75	1 75
Impetus Valve Fulcrum Pin with Bushings	50	50	75	1 25	3 00

* Nos. 10, 15 and 20 Repair List not given above on account of not having made these sizes.

Figs. 570, 572, 670 and 672

THE IDEAL DOUBLE-ACTION OSCILLATING FORCE PUMPS

Nos.	0	1	2	3	4	5	6	7	8
Shell, Iron	2 25	2 50	3 50	4 50	5 50	6 50	7 00	8 50	9 25
Shell, Brass	10 00	13 00	16 50	25 00	29 00	36 00	39 00	49 00	62 00
Lid, Iron	1 35	1 50	1 75	2 25	2 75	3 75	4 25	4 75	6 00
Lid, Brass	4 00	6 00	8 25	11 00	16 00	19 50	23 00	26 00	33 00
Suction Valve Seat ("A" piece)	1 50	2 00	2 50	3 50	4 50	5 50	7 00	9 00	11 00
Valves, each	35	35	40	60	60	65	65	1 25	1 25
Wing Plunger, Iron Shaft	2 75	3 25	4 25	5 00	6 00	7 25	9 50	14 00	16 50
Wing Plunger, All Brass	3 50	4 25	5 75	7 50	9 50	11 00	14 00	19 50	21 50
Stuffing Box Nut	75	1 00	1 00	1 00	1 75	1 75	1 75	2 00	2 00
Stuffing Box Gland	20	35	35	35	50	50	50	75	75
Malleable Lever	35	55	55	55	75	75	75	1 00	1 00
Pipe Flanges, each	25	25	25	25	25	25	25	50	50
Base	1 50	1 50	2 00	2 00	2 50	2 50	3 00	4 50	4 50
Air Chamber	1 25	1 25	1 25	1 25	1 50	2 00	2 00	3 00	3 00
Cock Spout (Nos. 0, 1 and 2 have Brass Bibb Cock)	2 50	2 50	2 50	2 00	2 00	2 50	2 50	3 00	3 00

Repairs for Pumps not in Price List will be Quoted on Application.

Figs. 649, 659, 668, 669 and 689

SUCCESS AND PRIZE BUCKET SPRAYERS

Figure.....	649	659	668	669	689
Air Chamber (or Discharge Chamber).....	1 75	1 75	1 75	0 75	1 75
Cylinder Tube.....	1 50	1 50	1 50	1 50	1 50
Plunger Tube.....	1 00	1 00	1 00	1 00	1 00
Plunger and Ball Valve.....	75	75	75	75	75
Foot Valve (Ball Valve and Cage).....	50	50	50	50	50
Foot Rest, complete.....	1 00	50	.....	50	1 00
Handle.....	25	25	25	25	25
Stuffing Box Gland.....	25	25	25	25	25
Bronze Ball Valves only, for Plunger and Foot Valve.....	20	20	20	20	20
Plunger Packing.....	10	10	10	10	10
Stuffing Box Packing.....	10	10	10	10	10
Tank and Attachments, complete.....	10 00	.....	6 00	.....	.....

Figs. 529, 549, 550, 645, 651 and 664

BARREL SPRAYERS FOR ORCHARD AND GARDEN

Figure.....	529	549	550	645	651	664
Top Section.....	1 50	1 50	.....	0 75	0 75	0 75
Base.....	.....	.....	50	2 25	75	1 25
Cylinder.....	2 00	2 00	4 50	1 50	1 50	1 50
Air Chamber.....	1 25	1 25	.....	2 75	75	75
Lever, or Handle.....	75	75	75	1 00	50	50
Fulcrum or Rod Link.....	25	25	15	.....	20	20
Stuffing Box Cap.....	75	75	75	.....	50	50
Stuffing Box Gland.....	1 25	1 25	1 25	.....	40	40
Plunger Rod.....	50	50	75	75	1 00	1 00
Plunger Rod Connection.....	25	25	15	15	50	50
Plunger, complete.....	1 50	1 50	1 50	1 75	1 00	1 00
Plunger Crimp Packing.....	25	25	25	25	20	20
Bottom Attachment, with Valve.....	2 25	2 25	1 00	3 00	80	80
Suction Strainer.....	75	75	75	.....	75	75
Suction Pipe.....	1 25	75	75	.....	50	75
Agitator, complete.....	.....	2 50	2 50	2 50	.....	.....

Figs. 610 and 614

TANK SPRAYERS FOR ORCHARDS AND PARKS

Figure.....	610	614	Figure.....	610	614
Cylinder.....	8 00	15 00	Fulcrum Link.....	0 50	0 50
Valve Chamber Caps, each.....	25	25	Plunger.....	1 50	1 50
Stuffing Box Head.....	75	.....	Plunger Rod.....	2 00	5 00
Stuffing Box Head, with Guide for Fig. 614.....	.....	3 50	Cross Head.....	.....	75
Stuffing Box Gland.....	50	1 00	Suction Valves, each.....	50	1 50
Blank Head.....	50	1 00	Discharge Valves, each.....	75	1 50
Air Chamber.....	3 50	5 00	Suction Coupling Nut.....	15	15
Lever Socket.....	50	1 00	Suction Hose Tube.....	1 00	1 00
Lever.....	2 00	2 00	Plunger Crimp Packings, each.....	50	50
			Suction Strainer.....	75	75

Pumps in Repair List, but not Illustrated, are Found in Former Catalogue.

MISCELLANEOUS PUMP REPAIRS.

AIR CHAMBERS FOR FORCE PUMPS

Well Force Pump, Fig. 192.....	\$ 2 50	Double-acting Force Pumps, Figs. 542 and 543.....	
Hand and House Force Pumps, Figs. 501, 504, 505 and 521.		For 2, 2½, and 2½ inch Pumps.....	\$ 2 50
For 2, 2½, 2½, 2½, 3, 3½ and 3½ inch Pumps.....	2 00	For 2½ and 3 inch Pumps.....	3 50
For 4 and 4½ inch Pumps.....	2 50	For 3½ inch Pumps.....	5 00
Hand and House Force Pumps, Figs. 430, 431, 506, 507, 508, 509, 512, 524, 534, 535 and 546.		For 4 inch Pumps.....	6 50
For 2, 2½, 2½, 2½, 3 and 3½ inch Pumps.....	2 50	For 4½ inch Pumps.....	8 00
For 3½, 4 and 4½ inch Pumps.....	3 00	Well and Wind Mill Force Pumps, Figs. 223, 239, 241, 406 and 407.....	2 50
"Torrent" D. A. Force Pumps, Figs. 480 and 481.....	3 50	Fig. 231.....	3 00
Figs. 486 and 487, Nos. 2 and 4.....	4 00	Figs. 233 and 427.....	4 00
Figs. 486 and 487, No. 6.....	8 00	Deep Well Working Head, Fig. 435.	
Wind Mill Working Heads, Figs. 432 and 433.....	6 00	No. 1.....	8 00
		No. 2.....	15 00
		Deep Well Force Pump, Fig. 569.....	4 00

ATTACHMENTS FOR WIND MILL PUMPS

Flat and Round Rod Couplings.....	0 50
Slide for connecting to Wind Mill Wood Rod.....	50
Turned Malleable Pins for Wind Mill Pumps.....	10

BASES

Well Pump, Fig. 192.....	\$ 1 00	No. 3.....	1 25
Well Pumps, Figs. 201 and 203.		Nos. 4 and 5.....	1 50
Nos. 1 and 2.....	75	"Torrent" Double-acting Force Pumps, Figs. 480, 486 and 487.	
No. 3.....	85	No. 2.....	2 25
No. 4.....	1 00	No. 4.....	3 00
Hand Force Pumps, Figs. 502, 504, 506, 508 and 512.		No. 6.....	4 00
Nos. 1 and 2.....	1 00	Wind Mill Pump, Fig. 395.....	1 00
No. 3.....	1 25	Boiler Feed Pump, Fig. 592.....	6 00
Nos. 4 and 5.....	1 50	Deep Well Pump, Fig. 586.....	6 00
Hand Force Pumps, Figs. 530 and 534.		Deep Well Working Heads, Figs. 432 and 433.....	3 00
Nos. 0 and 1.....	1 00	Heavy Deep Well Working Head, Fig. 435.	
Nos. 2, 3 and 4.....	1 25	No. 1.....	3 00
Hand Force Pumps, with Wind Mill top, Fig. 430.		No. 2.....	5 00
No. 2.....	1 00		

BRASS VALVE SEATS—FOR FORCE PUMPS

Nos.....	1	2	3	4	5	6
Hand Force Pumps, Figs. 502, etc.....	0 75	0 85	1 15	1 50	2 00	.....
House Force Pumps, Figs. 520, etc.....	75	85	95	1 15	1 35	1 50
Wind Mill Force Pump, Fig. 431.....	.....	85	1 15	1 50	2 00	.....

Repairs for Pumps not in Price List will be Quoted on Application.

MISCELLANEOUS PUMP REPAIRS—Continued

BOLTS AND SCREWS

Cap Screws and Set Screws.....	0 08
Lever and Bearer Bolts.....	08

BRACES

Set-length and Wind Mill Pumps and Shallow Well Pump Standards.....	0 50
Deep Well Pump Standards. Figs. 227, 230 and 231.....	60
Heavy Deep Well Pump Standards. Figs. 232, 233, 426 and 427.....	75

BRASS TUBES, FOR IRON OR LEAD PIPE

Brass Tubes for Iron Pipe for Cistern and Force Pumps, 1 inch.....	0 55
1½ inch.....	65
1¾ inch.....	80
2 inch.....	1 25
2½ inch.....	2 00
Brass Tubes for Lead Pipe for Cistern, Pitcher and Force Pumps.	
1 inch.....	0 80
1½ inch.....	35
1¾ inch.....	50
2 inch.....	1 00
2½ inch.....	1 50

CAPS

(BOTTOM FOR BRACKET PUMPS)

Force Pumps, Single-acting, Figs. 500, 501, 531, 535, 520, 521, 524 and 537.	
2 and 2½ inch.....	0 75
2½, 2¾ and 3 inch.....	1 00
3¼ and 3½ inch.....	1 25
3¾ inch.....	1 50
4 inch.....	1 75
4½ inch.....	2 00

Brass Flanges and Caps double the above Lists.

CROSS HEADS AND LINKS

Well Pumps with Tight Top, Well Force Pumps, Hand Force Pumps, etc., including Figs. 192, 199, 203, 213, 214, 215, 219, 223, 228, 229, 239, 502 to 512, 530, 531, 534, 535 and 537.	
Cross Head.....	0 50
Links, pair.....	25
Heavy Deep Well Pump Standards, Figs. 232, 233 and 234.	
Cross Head.....	75
Links, pair.....	50
Brass Cross Head, Fig. 435.	
No. 1.....	3 00
No. 2.....	3 50
Deep Well Pump Standards, Figs. 230 and 231.	
Yoke.....	80
Link.....	20

CYLINDERS, PUMP

Hand Force Pumps, with Wind-mill Top, Figs. 430 and 481.	
Nos. 2 and 3.....	5 00
No. 4.....	7 00
No. 5.....	8 00
Double-acting Hand Force Pumps, with Wind-mill Top, Figs. 480 and 481.	
No. 2.....	7 00
No. 4.....	8 00
"Torrent" Double-acting Force Pumps, Figs. 486 and 487.	
No. 2.....	10 00
No. 4.....	12 00
No. 6.....	15 00
Hand Force Pumps, Figs. 502, 503, 504, 505, 506, 507, 508, 509 and 512.	
No. 1.....	3 00
Nos. 2 and 3.....	4 00
No. 4.....	6 00
No. 5.....	6 50
<i>Brass Cylinders Double List of Iron.</i>	
Hand Force Pumps, Figs. 514 and 515.	
No. 1.....	2 00
No. 2.....	2 25
<i>Brass Cylinders Double List of Iron.</i>	

Hand Force Pumps, Figs. 530, 531, 534 and 535.	
Nos. 0 and 1.....	3 00
Nos. 2, 3 and 4.....	4 00
<i>Brass Cylinders Double List of Iron.</i>	
House Force Pumps, Figs. 500, 501, 520, 521, 524 and 546.	
No. 1.....	3 50
No. 2.....	4 00
No. 3.....	4 25
No. 4.....	4 50
No. 5.....	5 00
No. 6.....	6 00
<i>Brass Cylinders Double List of Iron.</i>	
Double-acting House Force Pumps, Figs. 541, 542 and 543.	
No. 1.....	4 00
No. 2.....	5 50
No. 3.....	6 50
No. 4.....	8 00
No. 5.....	11 00
No. 6.....	14 00
"New York" Brass Force Pumps, Figs. 558 and 559.....	5 00

Pumps in Repair List, but not Illustrated, are Found in Former Catalogue.

MISCELLANEOUS PUMP REPAIRS—Continued

CYLINDERS OR WORKING BARRELS

Diameter, inches	1½ & 1½	2	2½	2½	2½	3	3½	3½	4	4½	5	6
Shell or Body												
Figs. 300 and 301	1 00	1 15	1 25	1 30	1 35	1 45	1 50	1 65	.....	.....	.....	.....
Figs. 302 and 303, 12 inches long	1 40	1 50	1 65	1 75	1 85	2 00	2 20	2 40	.....	.....	.....	.....
Figs. 302 and 303, 14 inches long	1 70	1 80	1 90	2 05	2 25	2 40	2 60	2 95	4 80	6 00	.....	.....
Figs. 304 and 305	1 75	1 90	2 02	2 15	2 35	2 55	2 75	3 40	7 00	7 50	8 40	.....
Figs. 308, with Brass Lining	2 60	2 80	3 00	3 25	3 50	4 50	5 00	5 50	.....	.....	.....	.....
Figs. 309, with Brass Lining 12in. long	3 00	3 50	3 75	4 00	4 25	5 00	5 50	6 50	.....	.....	.....	.....
Figs. 309, with Brass Lining 14in. long	3 50	4 00	4 50	5 00	5 50	6 00	6 75	8 00	.....	.....	.....	.....
Figs. 310, with Brass Lining	4 00	4 50	5 00	5 50	6 00	6 75	7 50	9 00	.....	.....	.....	.....
Figs. 312 and 322, 10 inches long	3 00	3 25	3 50	3 75	4 00	4 50	5 00	6 25	.....	.....	.....	.....
Figs. 312 and 322, 12 inches long	3 50	3 75	4 00	4 50	5 00	5 50	6 00	7 50	.....	.....	.....	.....
Figs. 312 and 322, 14 inches long	4 00	4 50	5 00	5 50	6 00	6 50	7 00	8 50	12 00	15 00	20 00	.....
Figs. 312 and 322, 16 inches long	4 50	5 00	5 50	6 00	6 50	7 00	7 50	10 00	15 00	18 00	25 00	.....
Figs. 312 and 322, 18 inches long	5 00	5 50	6 00	6 50	7 00	7 50	8 00	11 50	.....	.....	.....	.....
Figs. 312 and 322, 20 inches long	5 50	6 00	6 50	7 00	7 50	8 00	8 50	13 00	.....	.....	.....	.....
Bottom Attachments or Caps												
Fitted Outside, Figs. 300, 301, 302, 304, 308, 309, 310, 312 and 318	75	75	75	75	75	75	90	90	1 75	2 00	2 25	.....
Fitted Inside, Figs. 303, 305 and 322 (with Leather Valve)	1 00	1 00	1 00	1 00	1 00	1 25	1 25	1 25	2 00	2 25	2 50	.....
Brass Bottom Attchm'ts, fitted outside Brass Bottom Attchm'ts, fitted inside (with Leather Valve)	2 00	2 00	2 00	2 25	2 50	2 50	3 00	3 50	4 25	5 00	6 50	8 00
Top Attachments or Caps												
Fitted outside, Figs. 300, 301, 302, 304, 308, 309, 310 and 312	50	50	50	50	50	75	75	75	1 50	1 75	2 00	.....
Fitted inside, Figs. 303, 305 and 322	75	75	75	75	75	1 00	1 00	1 00	1 75	2 00	2 25	.....
Brass Top Attachments, fitted outside Brass Top Attachments, fitted inside	1 50	1 75	1 75	2 00	2 00	2 25	2 50	3 00	3 75	4 50	5 50	7 50
Plungers only—no Rods												
IRON FOLLOWERS												
"A" style	50	55	60	65	70	75	80	1 00	1 50	.....	.....	.....
"B" and "J" style	1 50	1 75	2 00	2 25	2 50	2 75	3 25	4 00	5 00	7 00	9 00	.....
"C" and "L" style	1 75	2 00	2 25	2 50	2 75	3 00	3 50	4 25	6 25	8 00	12 00	.....
All Brass Plungers												
"F" style, for 10 and 12 inch Cylinders	1 50	1 50	1 75	2 00	2 25	2 75	3 25	4 00	.....	.....	.....	.....
"B" style	2 25	2 50	2 75	3 00	3 50	4 00	4 75	5 50	8 00	12 00	18 00	.....
"C" style	2 50	2 50	2 75	3 00	3 50	4 00	4 75	5 50	7 00	10 00	14 00	20 00
"J" style	2 25	2 25	2 50	2 75	3 00	3 50	4 00	4 75	5 50	8 00	12 00	18 00
"L" style	2 50	2 50	2 75	3 00	3 50	4 00	4 75	5 50	7 00	10 00	14 00	20 00
Plunger Poppet Valves, Iron	10	10	10	11	12	12	13	14	15	.....	.....	.....
Plunger Poppet Valves, Brass	15	20	25	25	30	30	30	35	40	50	60	.....
Cylinder Ring Packings	04	04	04	05	05	06	07	08	10	12	15	.....
Plunger Leathers, not Crimped	08	08	09	10	11	13	14	16	17	20	25	.....
Plunger Leathers, Crimped	15	15	17	20	22	25	28	32	35	42	50	.....
Lower Valve Leathers	10	10	11	12	13	15	17	19	24	28	35	.....
Valve Weights and Screws	08	08	08	08	08	08	10	15	20	20	25	.....
Lower Valves, complete	18	18	20	22	23	25	30	35	45	60	85	.....
Plunger Cages, Iron	28	29	30	32	33	33	37	39	43	.....	.....	.....
Plunger Cages, Brass	50	50	50	60	80	90	1 25	1 40	1 60	2 75	4 75	6 50
Plunger Followers, Iron, "A" style	20	23	24	26	28	31	39	55	75	.....	.....	.....
Plunger Followers, Iron, "B" & "J" style	75	80	85	90	1 00	1 10	1 20	1 35	1 50	1 75	2 50	.....
Plunger Followers, Iron, "C" & "L" style	1 00	1 05	1 10	1 15	1 25	1 35	1 45	1 60	1 85	2 15	3 25	.....
Plunger Followers, Brass, "F" style	65	65	70	75	80	90	1 00	1 30	.....	.....	.....	.....
Plunger Followers, Brass, "B" & "J" style	1 40	1 40	1 60	1 70	1 80	2 05	2 30	2 60	3 00	3 75	5 00	8 00
Plunger Followers, Brass, "C" & "L" style	1 65	1 65	1 85	1 95	2 30	2 55	2 90	3 20	4 35	5 75	7 00	10 00

Repairs for Pumps not in Price List will be Quoted on Application.

MISCELLANEOUS PUMP REPAIRS—Continued**DISCHARGE FUNNELS FOR FORCE PUMPS****Single-acting Force Pumps.**

Figs. 500, 502, 503, 520, 530 and 531..... 1 00

Double-acting Force Pump, Fig. 541.

Nos. 1, 2, 3 and 4..... 1 50

Nos. 5 and 6..... 3 00

FLANGES (BOTTOM FOR BRACKET PUMPS)**Cistern and Force Pumps, Figs. 431, 503, 506, 507, 509.**

2, 2½, 2¾ and 3¼ inch..... 0 50

3, 3½, 3¾ and 4 inch..... 75

4 inch..... 1 00

4½ inch..... 1 25

Double-acting Force Pump, Fig. 481.

2½ inch..... 75

3 inch..... 1 00

Double-acting Force Pumps, Figs. 541, 542 and 543.

2¼, 2½ and 3 inch..... 2 00

3½ inch..... 3 00

4 inch..... 4 00

4½ inch..... 5 00

FLANGES, PIPE**Well and Wind Mill Pump Standards, Figs. 230, 231, 232, 233, 401, 406, 407, 426 and 427.**

..... 0 50

Deep Well Working Heads, Figs. 432 and 433.

For Suction Pipe..... 1 50

For Discharge Pipe..... 1 00

Mine and Artesian Well Working Head, Fig. 435.

For Suction Pipe, { No. 1..... 2 00

{ No. 2..... 3 00

For Discharge Pipe, { No. 1..... 1 50

{ No. 2..... 2 00

FULCRUMS OR BEARERS**Well Pump, Fig. 201.**

Nos. 1 and 2..... 0 70

Nos. 3 and 4..... 80

Well Pump, Fig. 198..... 75**Well Pump, Fig. 210..... 90****Well Pump, Fig. 211..... 1 00****Well Pump, Fig. 212..... 1 10****Tight Top Well Pump, Fig. 203.**

Nos. 2 and 3..... 1 25

No. 4..... 1 50

Tight Top Well Pumps, Figs. 199 and 213. 1 00**Tight Top Well Pump, Fig. 214..... 1 25****Tight Top Well Pump, Fig. 215..... 1 50****Well Force Pumps, Figs. 192, 219 and 223. 1 25****Well Pump Standard, Fig. 224.**

No. 3..... 90

No. 4..... 1 00

No. 5..... 1 10

Tight Top Well Pump Standard, Fig. 228.

No. 3..... 1 00

No. 4..... 1 25

No. 5..... 1 50

Well Force Pump Standards, Figs. 229, 239 and 241..... 1 25**Deep Well Pump Standards, Figs. 232 and 233..... 3 00****Wind Mill Pumps, 6 inch Stroke, Figs. 394, 395, 401, 403, 420, 421, 423 and 455. 1 50****Wind Mill Pumps, 10 inch Stroke, Figs. 394, 395, 401, 403 and 456..... 2 00****Wind Mill Pump, Adjustable Stroke, Fig. 419..... 2 50****Wind Mill Force Pumps, 6 inch Stroke, Figs. 404, 406, 407, 410, 411, 412, 413, 414, 415, 416, 417, 418, 422, 424, 425, 428, 430, 431, 432, 433, 442, 457, 467, 480 and 481..... 2 00****Wind Mill Force Pumps, 10 inch Stroke, Figs. 404, 406, 407, 410, 411, 412, 413, 414, 415, 416, 417, 418, 424, 428, 432, 433, 458 and 468..... 2 50****Wind Mill Force Pumps, Adjustable Stroke, Figs. 410 and 412..... 2 50****Heavy Wind Mill Pumps, 6 inch Stroke, Figs. 426 and 427..... 2 50****Heavy Wind Mill Pumps, 10 inch Stroke, Figs. 426 and 427..... 3 00****Hand Force Pumps, Figs. 502, 503, 504, 505, 506, 507, 508, 509, 512, 530, 531, 534 and 535..... 1 00****Hand Force Pumps, Figs. 514 and 515.**

Nos. 1 and 2..... 60

Movable Links, Figs. 514 and 515..... 30**House Force Pumps, Single-acting, Figs. 520, 521 and 524..... 1 50****House Force Pumps, Double-acting, Figs. 541 and 542..... 1 50****Movable Fulcrums, or Links, for Wind Mill Pumps, 6 inch Stroke..... 50**

10 inch Stroke..... 75

Long Malleable Links, Figs. 455, 457 and 467..... 1 00**Long Malleable Links, Figs. 456, 458 and 468..... 1 25**

Pumps in Repair List, but not Illustrated, are Found in Former Catalogue.

MISCELLANEOUS PUMP REPAIRS—Continued**GUIDES FOR PISTON RODS**

Single and Double-acting House Force Pumps, Figs. 520, 521, 524, 541, 542, 543 and 546.....	1 00	Mine and Deep Well Working Head, Fig. 435.	
"Texas" Deep Well Working Head, Fig. 436.		No. 1, 10 inch Stroke.....	4 00
Double Rod Guide (Rods each).....	1 50	No. 1, 16 inch Stroke.....	5 00
Movable Piston Guide.....	4 00	No. 2, 16 inch Stroke.....	6 00
Deep Well Standards, Figs. 569, 586.....	2 00	No. 2, 24 inch Stroke.....	7 00
		No. 2, 30 inch Stroke.....	8 00

LEVERS OR HANDLES

Open Top Well Pump, Fig. 201.		Wind Mill Pumps 6 inch Stroke, Figs. 394, 395, 401, 403, 404, 406, 417, 410, 411, 412, 413, 414, 415, 416, 417, 418, 424, 423, 430, 431, 432, 455, 457, 467, 480 and 481.....	1 50
Nos. 1, 2 and 3.....	0 75	Wind Mill Pumps, 10 inch Stroke, Figs. 394, 395, 401, 403, 404, 406, 407, 410, 411, 412, 413, 414, 415, 416, 417, 418, 424, 423 and 432.....	1 75
No. 4.....	85	Wind Mill Pumps, Adjustable Stroke, Figs. 410, 412, 419, 456, 458 and 468....	2 00
Open Top Well Pumps, Figs. 198, 210, 211 and 212.....	1 00	Hand Force Pumps, Figs. 502, 503, 504, 505, 506, 507, 508, 509, 512, 530, 531, 531 and 535, all sizes.....	1 00
Tight Top Well Pump, Fig. 203.		Hand Force Pumps, Figs. 514 and 515.	
Nos. 2 and 3.....	90	Nos. 1 and 2.....	60
No. 4.....	1 00	House Force Pumps, Single and Double-acting, Figs. 520, 521, 524, 541 and 542, all sizes.....	2 00
Tight Top Well Pumps, Figs. 192, 199, 213, 214 and 215.....	1 00	"New York" Brass Force Pump, Figs. 558 and 559.....	75
Well Pump Standards, Figs. 221 and 228 ..	1 00	Hand Boiler Feed Pumps, Figs. 567 and 587.....	1 00
Well Force Pumps, Figs. 219 and 223.....	1 25		
Well Force Pump Standards, Figs. 229, 239 and 241.....	1 25		
Special Well Pump Standard, Fig. 227....	1 50		
Deep Well Standards, Figs. 230 and 231....	1 75		
Heavy Deep Well Pump Standards, Figs. 232 and 233.....	2 00		
Well Pumps, with Wind-mill Top, Figs. 420, 421 and 423.....	1 50		
Well Force Pumps, with Wind-mill Top, Figs. 422 and 442.....	1 50		
Deep Well Standards, with Wind-mill Top, Figs. 426 and 427.....			
With 6 inch Stroke.....	1 75		
With 10 inch Stroke.....	2 00		

NUTS FOR SPOUTS AND AIR CHAMBERS

For Hand and Wind Mill Pumps.

1 inch	1¼ inch	1½ inch	2 inch	2½ inch	3 inch
0 25	0 25	0 35	0 50	0 60	0 80

PISTON AND CONNECTING RODS

Well and Wind Mill Pumps.		"Texas" Deep Well Working Head, Fig. 436. Polished Iron Rod.....	1 00
Round Polished Iron Rods.....	0 60	Deep Well Working Head, Fig. 433.	
Brass Cased Rods.....	1 00	Polished Iron Rod (with Cross Head).	3 00
Hand and House Force Pumps.		Mine and Artesian Well Working Head, Fig. 435.	
Round Polished Iron Rods.....	60	Solid Bronze Rod, No. 1, 10 inch Stroke.....	10 00
Brass Cased Rods.....	1 50	Solid Bronze Rod, No. 1, 16 inch Stroke.....	12 00
Stuffing-box Heads, Figs. 446, 447, 448 and 449.....		Solid Bronze Rod, No. 2, 16 inch Stroke.....	15 00
Brass Cased Rods.....	1 00	Solid Bronze Rod, No. 2, 24 inch Stroke.....	18 00
Wind Mill Force Pumps, Figs. 404, 406, 407, 411, 413, 414, 417, 418, 422, 424, 423, 430, 431, 432, 442, 457, 458, 467, 468, 480 and 481.		Solid Bronze Rod, No. 2, 30 inch Stroke.....	22 00
Short Flat Rods.....	60	Deep Well Force Pump Standards.	
Wind Mill Lift Pumps, Figs. 394, 395, 401, 403, 419, 420, 421, 423, 455 and 456.		Figs. 569 and 586.....	3 00
Long Flat Rods.....	75		

Repairs for Pumps not in Price List will be Quoted on Application.

MISCELLANEOUS PUMP REPAIRS—Continued**PITMANS**

House Force Pumps, Single and Double-acting, Figs. 520, 521, 524, 541 and 542.....	1 50
House Force Pumps, with Crank Shaft Box.	
Figs. 543 and 546.....	2 00
Deep Well Pump Standards.	
Figs. 569 and 586.....	15 00
Mine and Deep Well Working Head, Fig. 435.	
No. 1, 10 and 16 inch Stroke.....	5 00
No. 2, 16 inch Stroke.....	6 00
No. 2, 24 inch Stroke.....	7 00
No. 2, 30 inch Stroke.....	8 00
Deep Well Working Head, Fig. 433.	
With 6 inch Stroke.....	4 00
With 10 inch Stroke.....	5 00
"Texas" Deep Well Working Head, Fig. 436.	
Guide Head and Pitman.....	5 00

PUMP PLUNGERS, WITHOUT RODS

Hand Force Pumps, Figs. 430, 431, 480, 481, 502, 503, 504, 505, 506, 507, 508, 509, 530, 531, 534, 535.	
2, 2½ and 3 inch.....	1 00
¾ and 4 inch.....	1 50
Iron House Force Pumps, Figs. 520, 521, 524, 541, 542, 543 and 546.	
3 inch and under.....	1 00
¾ and 4 inch.....	1 50
4½ inch.....	2 50
Brass House Force Pumps, Figs. 520, 521, 524, 541, 542, 543 and 546.	
3 inch and under.....	2 25
¾ inch and over.....	2 75

RODS FOR SET LENGTH PUMPS

Open Top Lift Pumps, Figs. 198, 201, 210, 211 and 212.....	0 75
Close Top and Force Pumps, Figs. 199, 203, 213, 214, 215, 219 and 223.....	1 00

SECTIONS, IRON TOP OF BRASS CYLINDER FORCE PUMPS

Hand Force Pumps, Figs. 502, 503, 504, 505, 506, 507, 508 and 509.	
No. 1.....	2 00
Nos. 2 and 3.....	2 75
No. 4.....	4 00
No. 5.....	4 50
Hand Force Pumps, Figs. 530, 531, 534 and 535.	
Nos. 0 and 1.....	2 00
Nos. 2, 3 and 4.....	2 75
Hand Force Pumps, Wind-mill Top, Figs. 430 and 431.	
Nos. 2 and 3.....	2 75
No. 4.....	4 00
No. 5.....	4 50
House Force Pumps, Figs. 520, 521 and 524.	
No. 1.....	2 00
Nos. 2 and 4.....	2 75
Nos. 5 and 6.....	4 00

SET LENGTHS (CAST IRON)

Well Pumps, Figs. 201 and 203.....	2 25
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SET LENGTH PIPES

Length, 3 feet, for Figs. 117 and 130.	
1 in., 0 60; 1½ in., 0 75; 1¾ in., 1 50.	
Length, 4½ feet, for Figs. 198, 199, 210, 211, 212, 213, 214, 215, 219, 223, 420, 421, 422 and 442.	
1½ in., 1 00; 1¾ in., 1 50; 2 in., 1 75.	

SPOUTS, PLAIN

Figs. 223, 227, 241, 404, 413, 414, 418, 422, 457, 458, 514, 518 and 519.....	0 50
Figs. 230, 232 and 426.....	75
Fig. 586.....	1 50

SPOUTS WITH COCKS

Figs. 407, 411, 417, 424, 428, 442, 467, 468 and 569.....	2 50
Figs. 430 and 431; Nos. 2 and 3.....	2 00
Figs. 430 and 431; Nos. 4 and 5.....	2 50
Figs. 480 and 481; No. 2.....	2 00
Figs. 480 and 481; No. 4.....	2 50
Figs. 508, 509 and 512; Nos. 1, 2 and 3.....	2 00
Figs. 508, 509 and 512; Nos. 4 and 5.....	2 50
Fig. 524; Nos. 1, 2, 3 and 4.....	2 00
Fig. 524; Nos. 5 and 6.....	2 50
Figs. 515, 518 and 519.....	2 00
Figs. 572 and 672; Nos. 0 and 1.....	1 50
Figs. 572 and 672; Nos. 2, 3 and 4.....	2 00
Figs. 572 and 672; Nos. 5 and 6.....	2 50
Figs. 572 and 672; Nos. 7 and 8.....	3 50

Pumps in Repair List, but not Illustrated, are Found in Former Catalogue.

MISCELLANEOUS PUMP REPAIRS—Continued**STANDARDS COMPLETE**

Well Pump, Fig. 198	4 75	Well Pumps, Fig. 210.....	5 50
Well Pump, Fig. 192	8 50	Fig. 211.....	6 00
Tight Top Well Pump, Fig. 199	5 50	Fig. 212.....	6 50
Well Pump, Fig. 201.		Tight Top Well Pumps, Fig. 213.....	6 25
Nos. 1 and 2.....	4 00	Fig. 214.....	6 75
No. 3.....	4 50	Fig. 215.....	7 25
No. 4.....	5 00	Well Force Pumps, Fig. 219.....	9 00
Tight Top Well Pump, Fig. 203.		Fig. 223.....	10 00
Nos. 1 and 2.....	4 75	Well Pumps, with Wind-mill Top, Fig. 420	7 00
No. 3.....	5 25	Fig. 421.....	7 50
No. 4.....	5 75	Fig. 423.....	8 00
		Well Force Pumps, with Wind-mill Top.	
		Fig. 422.....	10 00
		Fig. 442.....	12 50

STANDARDS ONLY

Well Pumps, Figs. 201 and 203.		Wind Mill Pump Standards, Figs. 408 and 419.	
Nos. 1 and 2.....	2 00	No. 3.....	3 75
No. 3.....	2 40	No. 4.....	4 25
No. 4.....	2 60	No. 5.....	4 75
No. 5.....	2 75	Wind Mill Pump Standard, Fig. 401.	
Well Pumps.		Top Section.....	2 40
Figs. 198 and 199.....	3 50	Bottom Section.....	3 60
Figs. 210, 213 and 420.....	3 75	Wind Mill Lift Pump Standard, Fig. 394..	5 00
Figs. 211, 214 and 421.....	4 25	Wind Mill Force Pump Standard, Fig. 407	6 00
Figs. 212, 215 and 423.....	4 75	Wind Mill Force Pump Standard, Fig. 406	
Well Pump Standards, Figs. 224 and 228.		Top Section.....	2 40
No. 3.....	3 75	Bottom Section.....	3 00
No. 4.....	4 25	Wind Mill Force Pump Standards, Figs. 404 and 411.	
No. 5.....	4 75	No. 4.....	6 50
"Peerless" Double-acting Force Pumps,	5 00	No. 5.....	7 50
Well Force Pumps and Standards, Figs. 219, 223, 229, 239 and 241.....	4 50	Wind Mill Force Pump Standards, Figs. 418 and 423.....	6 50
Special Well Pump Standard, Fig. 227....	5 00	Figs. 413, 414, 417, 422, 424, 442, 457, 458, 467 and 468.....	6 00
Deep Well Pump Standards, Figs. 230 and 231.		Geared Deep Well Pump Standard, Fig. 586.	
Top Section.....	3 00	Nos. 1, 2 and 3.....	12 00
Bottom Section.....	4 00	Geared Deep Well Pump Standard, Fig. 569.....	15 00
Deep Well Pump Standards, Figs. 232, 233 and 234; also Figs. 426 and 427 (Wind Mill Top).			
Top Section.....	4 00		
Bottom Section.....	6 50		
Wind Mill Pump Standards, Figs. 455 and 456.....	4 25		

STUFFING-BOX BOWLS, BRASS

Hand and House Force Pumps, Single and Double-acting, Figs. 502, 503, 504, 505, 506, 507, 508, 509, 512, 520, 521, 524, 530, 531, 534, 535, 541, 543 and 546, all sizes.....	1 25
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Repairs for Pumps not in Price List will be Quoted on Application.

MISCELLANEOUS PUMP REPAIRS—Continued

STUFFING-BOX CAPS AND GLANDS

	Cap	Gland		Cap	Gland
Deep Well Pump, Fig. 230.....	0	50	Hand Force Pumps, Figs. 514 and 515.....	0	50
Deep Well Force Pump, Fig. 231.....	75	0 50	"Texas" Deep Well Working Head, Fig. 436.....	1	50
Heavy Deep Well Pumps, Figs. 232 and 426.....	90	.....	Hand Boiler Feed Pump, Fig. 587....	50	1 00
Heavy Deep Well Pumps, Figs. 233 and 427.....	90	60	House Force Pumps, Iron.....	65	1 00
Well Force Pumps, Figs. 219, 223, 229, 239, 241, 422 and 442.....	1	00 75	House Force Pumps, Brass.....	2	25 1 00
Hand Force Pumps, Figs. 430, 431, 480 and 481, 2 inch.....	.....	75	Wind Mill Force Pumps, Figs. 413, 414, 417, 418, 424, 428, 457, 458, 467 and 468.....	1	00 85
2½ and 3 inch.....	.....	1 00	Wind Mill Force Pumps, Figs. 404, 406, 407 and 411.....	.....	85
3½ and 4 inch.....	.....	1 00	"Torrent" Double-acting Force Pumps, Figs. 486 and 487.....	.....	1 50
Deep Well Standards, with Fly-wheel, Figs. 569 and 586.....	.....	1 00	Deep Well Working Heads, Figs. 432 and 433.....	.....	85
Stuffing-box Heads, Figs. 446, 447 and 448.....	.....	1 00	Deep Well Working Head, Fig. 435. No. 1.....	.....	1 00
Stuffing-box Head, Fig 449.....	.....	1 50	No. 2.....	.....	1 50



A WELL TOLD TALE.

INDEX TO FIGURES

Nearly every article in this Catalogue is designated by a "Figure" number. Articles not thus designated or thus known may be found by referring to the Alphabetical Index in the front part of the book.

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